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DEClaser 2000 Family Printer
Maintenance
Student Guide

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Digital Equipment Corporation

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CONTENTS

1 STUDENT GUIDE

1.1	INTRODUCTION	1-1
1.2	PREREQUISITES	1-1
1.3	COURSE GOALS	1-1
1.4	MAINTENANCE PHILOSOPHY	1-2
1.4.1	Corrective	1-2
1.4.2	Preventive	1-2
1.5	COURSE ORGANIZATION	1-2
1.6	CONTENTS OF THE UNITS	1-3
1.7	TESTING	1-3

2 DEClaser PHYSICAL/FUNCTIONAL DESCRIPTIONS

2.1	INTRODUCTION	2-1
2.2	OBJECTIVES	2-1
2.3	DESCRIPTION OF THE DEClaser 2100 PRINTER	2-2
2.3.1	Printer Components	2-3
2.4	PAPER CASSETTES AND MANUAL FEEDERS	2-9
2.5	OUTPUT STACKS AND PAPER PATHS	2-10
2.5.1	Paper Paths	2-11
2.5.2	Paper Path and Jam Detection Sensing	2-11
2.6	DESCRIPTION OF THE DEClaser 2200 PRINTER	2-12
2.6.1	Printer Components	2-13
2.7	MEDIA INPUT FEEDERS AND CASSETTES	2-19
2.8	OUTPUT STACKS AND PAPER PATHS	2-20
2.8.1	Paper Paths	2-22
2.8.2	Paper Path Jam Detection Circuits	2-24

3 DEClaser 2100 CONTROL PANEL OPERATION

3.1	INTRODUCTION	3-1
3.2	OBJECTIVES	3-1
3.3	CONTROL PANEL KEYS AND INDICATORS	3-2
3.3.1	Control Panel Indicators	3-2
3.3.2	Control Panel Keys	3-4
3.4	SETUP MENU OPERATION	3-5
3.4.1	Setup Menu Format	3-6
3.4.2	Moving, Selecting, and Saving Values	3-6
3.4.3	Setup Menu	3-7
3.5	TEST PATTERNS	3-11
3.5.1	TEST PRINT A	3-11
3.5.2	Font List	3-13
3.5.3	TEST PRINT B	3-15
3.5.4	Engine Test Print	3-17
3.6	CHARACTER DUMP MODE	3-20

4 DEClaser 2200 CONTROL PANEL OPERATION

4.1	INTRODUCTION	4-1
4.2	OBJECTIVES	4-1
4.3	CONTROL PANEL KEYS AND INDICATORS	4-2
4.3.1	Control Panel Indicators	4-2
4.3.2	Control Panel Keys	4-4
4.4	SETUP MENU OPERATION	4-6
4.4.1	Setup Menu Format	4-7
4.4.2	Moving, Selecting, and Saving Values	4-7
4.4.3	Setup Menu	4-8
4.5	TEST PATTERNS	4-12
4.5.1	TEST PRINT A	4-12
4.5.2	Font List	4-14
4.5.3	TEST PRINT B	4-16
4.5.4	Engine Test Print	4-18
4.6	CHARACTER DUMP MODE	4-21

5 DEClaser 2100 TROUBLESHOOTING

5.1	INTRODUCTION	5-1
5.2	OBJECTIVES	5-1
5.3	TROUBLESHOOTING	5-2
5.4	GETTING STARTED	5-2
5.5	TROUBLESHOOTING POWER-UP FAULTS	5-4
5.6	TROUBLESHOOTING CONTROL PANEL FAULTS	5-6
5.6.1	Status Message and Faults	5-6
5.6.2	Operator Call Messages and Faults	5-7
5.6.3	Functional Messages and Faults	5-10
5.6.4	Service Messages	5-12
5.7	TROUBLESHOOTING PAPER JAM AND FEED FAULTS	5-16
5.7.1	Jam Troubleshooting Start FIP	5-16
5.7.1.1	The Three Paper Path Jam Areas	5-18
5.7.2	Power-Up Jams	5-19
5.7.3	Area 1 Jams	5-20
5.7.4	Area 2 Jams	5-22
5.7.5	Area 3 Jams	5-24
5.8	TROUBLESHOOTING IMAGE DEFECTS	5-26

6 DEClaser 2200 TROUBLESHOOTING

6.1	INTRODUCTION	6-1
6.2	OBJECTIVES	6-1
6.3	TROUBLESHOOTING	6-2
6.4	GETTING STARTED	6-2
6.5	TROUBLESHOOTING POWER-UP FAULTS	6-4

6.6	TROUBLESHOOTING CONTROL PANEL FAULTS	6-6
6.6.1	Status Message and Faults	6-6
6.6.2	Operator Call Messages and Faults	6-7
6.6.3	Functional Messages and Faults	6-12
6.6.4	Service Messages	6-14
6.7	TROUBLESHOOTING PAPER JAM AND FEED FAULTS	6-18
6.7.1	Jam Troubleshooting Start FIP	6-18
6.7.1.1	The Four Paper Path Jam Areas	6-20
6.7.2	Power-Up Jams	6-21
6.7.3	Area 1 Jams	6-23
6.7.4	Area 2 Jams	6-26
6.7.5	Area 3 Jams	6-28
6.7.6	Area 4 Jams	6-30
6.8	TROUBLESHOOTING IMAGE DEFECTS	6-34
7	DECLaser 2100 REMOVAL/REPLACEMENT PROCEDURES	
7.1	INTRODUCTION	7-1
7.2	OBJECTIVES	7-1
7.3	REMOVAL AND REPLACEMENT PROCEDURES	7-2
7.4	RECOMMENDED SPARES LISTING (RSL)	7-2
7.5	TOP COVER	7-4
7.5.1	Top Cover Mirror	7-7
7.5.2	Top Cover Switch Lever	7-12
7.6	OZONE FILTER	7-13
7.7	UPPER COVER	7-14
7.7.1	Front Subpanel	7-17
7.8	BOTTOM COVER	7-20
7.8.1	Font Cartridge Guides	7-22
7.9	EP-S CARTRIDGE	7-23
7.10	INPUT/OUTPUT (I/O) BOARD	7-24
7.11	VIDEO CONTROL BOARD	7-26
7.11.1	Page Count IC	7-28
7.12	RAM EXPANSION BOARD	7-29
7.13	DC CONTROL BOARD	7-30
7.14	CONTROL PANEL	7-34
7.15	HIGH-VOLTAGE POWER SUPPLY ASSEMBLY (HVPSA)	7-35
7.16	LOW-VOLTAGE POWER SUPPLY ASSEMBLY (LVPSA)	7-37
7.16.1	Solenoid and Sensor Board	7-40
7.17	SCANNER ASSEMBLY	7-43
7.18	FEED GUIDE ASSEMBLY	7-45
7.19	FIXING UNIT	7-46
7.20	TRANSFER DRIVE ASSEMBLY	7-50
7.20.1	Separation Pad	7-52
7.21	TRANSFER CORONA ASSEMBLY	7-53
7.22	PRECONDITIONING LAMP	7-54
7.23	PICKUP ROLLER ASSEMBLY	7-57

7.24	INTERMEDIATE GEAR ASSEMBLY	7-60
7.24.1	Inside OPC Drum Drive Gear	7-62
7.25	OUTPUT ROLLER ASSEMBLY	7-64
7.25.1	Output Roller Drive Gears	7-68
7.26	AC INLET ASSEMBLY	7-69
7.27	MAIN FAN (FM1)	7-70
7.28	FAN (FM2)	7-72
7.29	MAIN MOTOR ASSEMBLY	7-73
7.29.1	Main Motor Drive (Gears)	7-74
7.30	PAPER PRESSURE ASSEMBLY	7-75
7.31	VERIFYING PRINTER OPERATION	7-80
8	DECLASER 2200 REMOVAL/REPLACEMENT PROCEDURES	
8.1	INTRODUCTION	8-1
8.2	OBJECTIVES	8-1
8.3	REMOVAL AND REPLACEMENT PROCEDURES	8-2
8.4	RECOMMENDED SPARES LIST (RSL)	8-2
8.5	TOP COVER	8-4
8.5.1	Top Cover Mirror	8-7
8.5.2	Top Cover Switch Lever	8-12
8.6	ASSEMBLY SEPARATION	8-13
8.7	INVERTER UNIT	8-21
8.8	OZONE FILTER	8-26
8.9	OPTIONAL ENVELOPE FEEDER	8-27
8.10	UPPER COVER	8-30
8.11	DUPLEX GEAR SIDE PANEL	8-33
8.12	DUPLEX ACCESS SIDE PANEL	8-34
8.13	DUPLEX CASSETTE PANEL	8-35
8.14	DUPLEX INVERTER PANEL	8-36
8.14.1	Inverter Paper Guide Panel	8-37
8.14.2	Inverter Support Arms	8-38
8.14.3	Inverter Side Panels	8-40
8.14.4	Front Subpanel and Feeder Bracket	8-43
8.15	BOTTOM COVER	8-48
8.15.1	Font Cartridge Guides	8-50
8.16	EP-S CARTRIDGE	8-51
8.17	INPUT/OUTPUT (I/O) BOARD	8-52
8.18	VIDEO CONTROL BOARD	8-54
8.18.1	Page Count IC	8-56
8.19	UPPER CASSETTE SIZE-SENSING SWITCHES	8-57
8.20	RAM EXPANSION BOARD	8-58
8.21	DC CONTROL BOARD	8-59
8.22	CONTROL PANEL	8-63
8.23	HIGH-VOLTAGE POWER SUPPLY ASSEMBLY (HVPSA)	8-64
8.24	LOW-VOLTAGE POWER SUPPLY ASSEMBLY (LVPSA)	8-66
8.24.1	Solenoid and Sensor Board	8-69
8.25	SCANNER ASSEMBLY	8-72
8.26	FEED GUIDE ASSEMBLY	8-74

8.27	FIXING UNIT	8-75
8.28	TRANSFER DRIVE ASSEMBLY	8-79
8.28.1	Upper Separation Pad	8-81
8.29	TRANSFER CORONA ASSEMBLY	8-82
8.30	PRECONDITIONING LAMP	8-83
8.31	UPPER PICKUP ROLLER ASSEMBLY	8-86
8.32	INTERMEDIATE GEAR ASSEMBLY	8-89
8.32.1	Inside OPC Drum Drive Gear	8-91
8.33	OUTPUT ROLLER ASSEMBLY	8-93
8.33.1	Output Roller Drive Gears	8-97
8.34	AC INLET ASSEMBLY	8-98
8.35	MAIN FAN (FM1)	8-99
8.36	FAN (FM2)	8-101
8.37	MAIN MOTOR ASSEMBLY	8-102
8.37.1	Main Motor Drive (Gears)	8-103
8.37.2	Inverter Roller	8-104
8.37.3	Inverter Sensor	8-107
8.37.4	Printout Selector Switch	8-109
8.37.5	Inverter Drive Assembly	8-111
8.37.6	Inverter Drive Belt	8-112
8.38	LOWER PICKUP SEPARATION PAD	8-116
8.39	LOWER CASSETTE PAPER-OUT SENSOR	8-123
8.40	LOWER PICKUP ROLLER ASSEMBLY	8-125
8.41	SECOND PASS ROLLER	8-128
8.41.1	Second Pass Pickup Solenoid	8-132
8.42	SECOND PASS SENSOR	8-134
8.43	ALIGNMENT GUIDE DRIVE ASSEMBLY	8-136
8.44	ALIGNMENT PRESSURE PLATE AND ROLLER	8-138
8.45	ALIGNMENT ROLLER	8-142
8.46	DUPLEX UNIT MOTOR ASSEMBLY	8-144
8.47	UPPER PAPER PRESSURE ASSEMBLY	8-146
8.48	LOWER PAPER PRESSURE ASSEMBLY	8-151
8.49	VERIFYING PRINTER OPERATION	8-155
9	DEClaser 2100/2200 TOTAL CALL CONCEPT (TCC)	
9.1	INTRODUCTION	9-1
9.2	OBJECTIVES	9-1
9.3	PERFORMING TCC	9-2
9.4	MAINTENANCE LOG	9-2
9.5	100K PM PROCEDURE	9-2
9.6	TCC PROCEDURE	9-3
9.6.1	External Cleaning	9-3
9.6.2	Internal Cleaning and Inspection	9-3

A POST-TEST

FIGURES

2-1	Components: Right-Side View	2-3
2-2	Components: Rear View	2-5
2-3	Components: Internal View	2-7
2-4	Cassette and Manual Feeder Top	2-9
2-5	Output Stacks	2-10
2-6	DEClaser 2100 Paper Paths	2-11
2-7	Components: Right-Side View	2-13
2-8	Components: Rear View	2-15
2-9	Components: Internal View	2-17
2-10	Cassette and Manual Feeder Top	2-19
2-11	Output Stacks	2-20
2-12	Printout Selector	2-21
2-13	DEClaser 2200 Paper Paths	2-22
2-14	Duplex Paper Paths	2-23
2-15	Paper Path Sensor Locations	2-24
3-1	Control Panel Indicators	3-2
3-2	DEClaser 2100 Keypad Keys	3-4
3-3	DEClaser 2100 Keypad Operation	3-5
3-4	Setup Menu Display Text	3-6
3-5	TEST PRINT A	3-12
3-6	Font List	3-14
3-7	TEST PRINT B	3-16
3-8	Pressing the TEST PRINT Button	3-17
3-9	Engine Test Print	3-19
4-1	Control Panel Indicators	4-2
4-2	DEClaser 2200 Keypad Keys	4-4
4-3	DEClaser 2200 Keypad Operation	4-6
4-4	Setup Menu Display Text	4-7
4-5	TEST PRINT A	4-13
4-6	Font List	4-15
4-7	TEST PRINT B	4-17
4-8	Pressing the TEST PRINT Button	4-18
4-9	Engine Test Print	4-20
5-1	Start FIP	5-3
5-2	Power-Up Fault	5-5
5-3	Jam Start FIP	5-17
5-4	DEClaser 2100 Jam Areas	5-18
6-1	Start FIP	6-3
6-2	Power-Up Fault	6-5
6-3	Jam Start FIP	6-19
6-4	DEClaser 2000 Jam Areas	6-20

TABLES

2-1	Printer Components: Right-Side View	2-4
2-2	Printer Components: Rear View	2-6
2-3	Printer Components: Internal View	2-8
2-4	Printer Components: Right-Side View	2-14
2-5	Printer Components: Rear View	2-16
2-6	Printer Components: Internal View	2-18
3-1	Control Panel Indicators	3-3
3-2	Off-Line READY Keys	3-4
3-3	Menu Scrolling Keys	3-6
3-4	DEClaser 2100 Setup, Feature, and Value Menus	3-7
4-1	Display Panel Indicators	4-3
4-2	Control Panel Keys	4-4
4-3	Menu Scrolling Keys	4-7
4-4	DEClaser 2200 Setup, Feature, and Value Menus	4-8
5-1	Operational Status Messages	5-6
5-2	Operator Call Messages	5-7
5-3	Functional Messages	5-10
5-4	Service Messages	5-12
5-5	Power-Up Jams	5-19
5-6	Area 1 Jams	5-20
5-7	Area 2 Jams	5-23
5-8	Area 3 Jams	5-24
5-9	Image Defect Lookup Table	5-26
6-1	Operational Status Messages	6-6
6-2	Operator Call Messages	6-7
6-3	Functional Messages	6-12
6-4	Service Messages	6-14
6-5	Power-Up Jams	6-21
6-6	Area 1 Jams	6-24
6-7	Area 2 Jams	6-26
6-8	Area 3 Jams	6-28
6-9	Area 4 Inverter Path Jams	6-30
6-10	Area 4 Duplex Unit Jams	6-32
6-11	Image Defect Lookup Table	6-34
7-1	DEClaser 2100 RSL	7-2
8-1	DEClaser 2200 RSL	8-2

UNIT 1

STUDENT GUIDE

1.1 INTRODUCTION

The DEClaser 2000 Family Printer Maintenance is a self-paced course on the DEClaser 2100 and 2200 desktop printers. This course is designed to be offered at Field Training Center sites A and B, worldwide. To complete this course, you must have access to a DEClaser 2100 and/or 2200 printer for front panel operation and component removal and replacement.

1.2 PREREQUISITES

The Customer Services Engineers (CSEs) who attend this course should know how to maintain existing Digital low-end printer products. This prerequisite can be obtained from either field experience or attending the following courses:

In the U.S.

- Hard copy and video: *Specialist Core* (EY-7629E-IV)
- *Laser Safety and Printer Concepts* (EY-5528E-IV)

In Europe and GIA

- *Data Communication Fundamentals* (EY-2830E-IV)
- Hard copy: *Theory* (EY-2239E-IV)

1.3 COURSE GOALS

In order to support Digital DEClaser 2000 Printer products, the CSEs should be able to:

- Identify the components of the DEClaser 2000 Family Printers.
- Describe the operation of the DEClaser 2000 Family Printers.
- Perform fault/failure isolation.
- Identify the failing field replaceable unit (FRU).
- Perform disassembly, FRU replacement, and reassembly.
- Perform operation verification procedures.
- Perform total call concept (TCC) procedures.

1.4 MAINTENANCE PHILOSOPHY

1.4.1 Corrective

On-site maintenance with FRU replacement is the basic maintenance plan. This course is designed to train you in functional troubleshooting and FRU removal and replacement.

1.4.2 Preventive

Preventive maintenance is performed using total call concept (TCC). TCC is covered in this course.

1.5 COURSE ORGANIZATION

The course material is presented in a series of units. You proceed through each unit by reading the text and working with the printer in the lab.

This course is designed so that adequate time is spent performing the type of hands-on exercises needed to maintain the DEClaser printers. To achieve this end, there are informational and performance-oriented units.

The course consists of the following units:

- **Unit 1—Student Guide**

This unit provides you with information about the course itself. It lists the prerequisites, course goals, maintenance philosophy, and information on the course organization and unit contents.

- **Unit 2—DEClaser Physical/Functional Descriptions**

This unit is an informational unit only. The unit describes the physical and functional specifications of the DEClaser printers.

- **Unit 3—DEClaser 2100 Control Panel Operation**

This unit is an informational and performance unit. It describes the control panel indicators, the keypad, and the setup menu so that you can use them in the lab.

- **Unit 4—DEClaser 2200 Control Panel Operation**

This unit is the same as Unit 3 except that it describes the DEClaser 2200 printer.

- **Unit 5—DEClaser 2100 Troubleshooting**

This unit is an informational unit on the fault isolation procedure (FIP) for the DEClaser 2100 printer.

- **Unit 6—DEClaser 2200 Troubleshooting**

This unit is an informational unit on the FIP for the DEClaser 2200 printer.

- **Unit 7—DEClaser 2100 Removal/Replacement Procedures**

This unit is a performance unit. It provides you with the FRU removal and replacement procedures for the DEClaser 2100 printer. These procedures are to be performed in the lab. The removal and replacement procedures must be performed in order to satisfactorily maintain this printer in the field.

UNIT 2

DEClaser PHYSICAL/FUNCTIONAL DESCRIPTIONS

2.1 INTRODUCTION

This unit provides a functional and physical description of the DEClaser 2100 and 2200 Printers. This description includes major external and internal components, media input feeders and cassettes, and output stacks and paper paths.

2.2 OBJECTIVES

Upon successful completion of Unit 2, the CSE should be able to:

1. Identify the major components of the DEClaser 2100/2200 Printers.
2. Describe the media feeders and cassettes used with the DEClaser 2100/2200 Printers.
3. Describe the output stacks and paper paths of the DEClaser 2100/2200 Printers.

2.3 DESCRIPTION OF THE DEClaser 2100 PRINTER

The DEClaser 2100 printer uses electrophotographic laser technology to print text and graphics at speeds up to 8 pages/minute with a density of 300 x 300 dots/inch. The printer consists of an engine (print mechanism) and a controller (formatter) that are driven from host-based software to provide shared printer access from the Digital network. The printer can serve as a personal desktop printer or as a shared group printer.

Some features of the DEClaser 2100 printer include:

- Capacity for two external font cartridges (optional)
- Font down-line loading capability
- Support for both serial and parallel interfaces
- Convenient user maintenance (one replaceable supply cartridge)
- Ability to print on envelopes
- Manual feeding capability

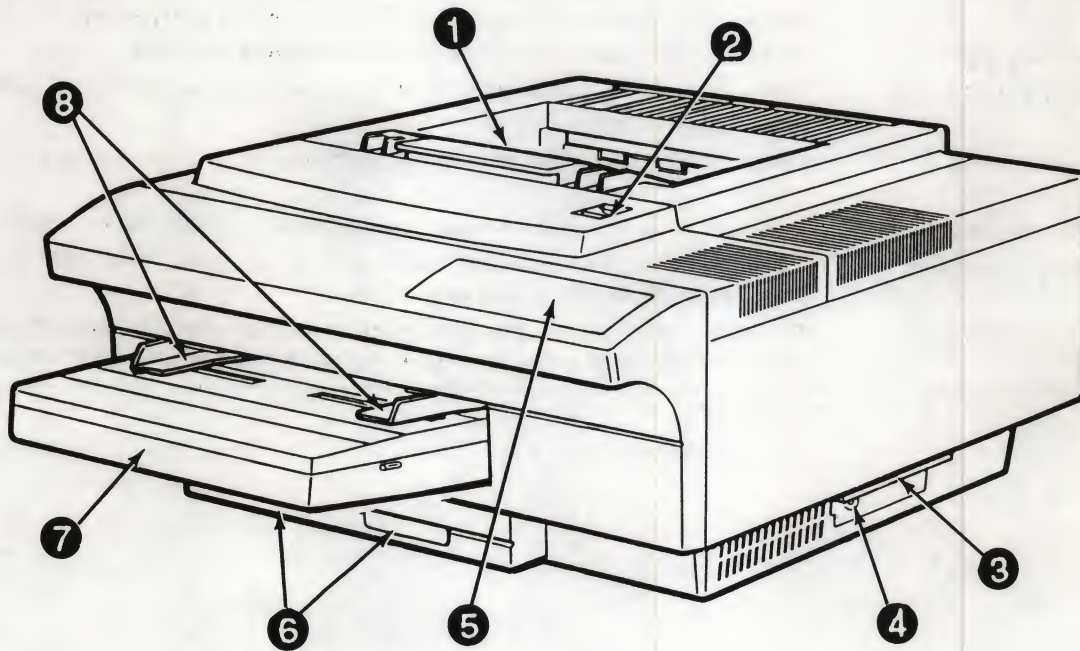
The following options are available for the DEClaser 2100 printer:

- A 1-, 2-, or 3-Mbyte user-installable memory expansion
- A font cartridge PostScript® option that converts the printer to a PostScript printer

® PostScript is a registered trademark of Adobe Systems, Inc.

2.3.1 Printer Components

Figure 2-1 has numbered callouts to identify the location of the operational components that are visible from the right side of the printer. For a description of each numbered element, refer to Table 2-1.



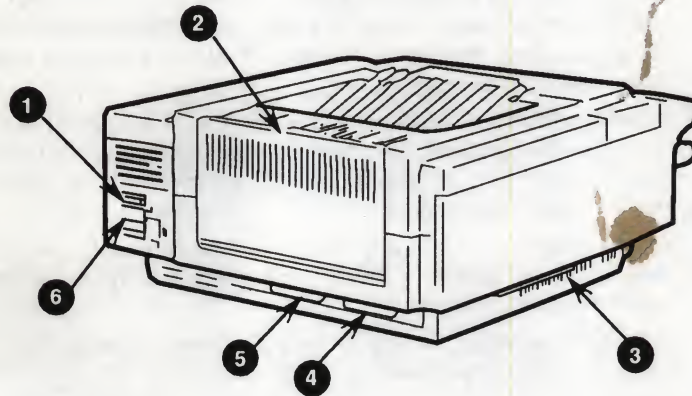
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Figure 2-1 Components: Right-Side View

Table 2-1 Printer Components: Right-Side View

No.	Component	Function
①	Facedown (top) output tray	Printed sheets are automatically collated and stacked (facedown) here.
②	Top cover release button	Pressing this button unlocks the top cover so it can be opened. Open the top cover to perform certain printer functions such as adding a new electrophotographic-supply (EP-S) cartridge or clearing a paper jam.
③	Carrying grip	A carrying grip is located on the right and left side of the printer.
④	TEST PRINT button	This button prints the engine test print. Use a pencil or suitable tool to press the TEST PRINT button.
⑤	Control panel	The control panel consists of a message display, the indicator lights, and a keypad.
⑥	Font cartridge slots	These two slots accept the optional font cartridges available for the printer.
⑦	Paper cassette	The paper cassette automatically feeds paper to the printer. It can hold up to 200 sheets of 21 lb (80 g/m ²) basis weight paper.
⑧	Manual feed guide	The manual feed guide is part of the paper cassette cover. The feed guide allows you to manually feed paper, envelopes, transparencies, and labels into the printer.

Figure 2-2 has numbered callouts to identify the location of the operational components that are visible from the rear of the DEClaser 2100 printer. For a description of each numbered component, refer to Table 2-2.



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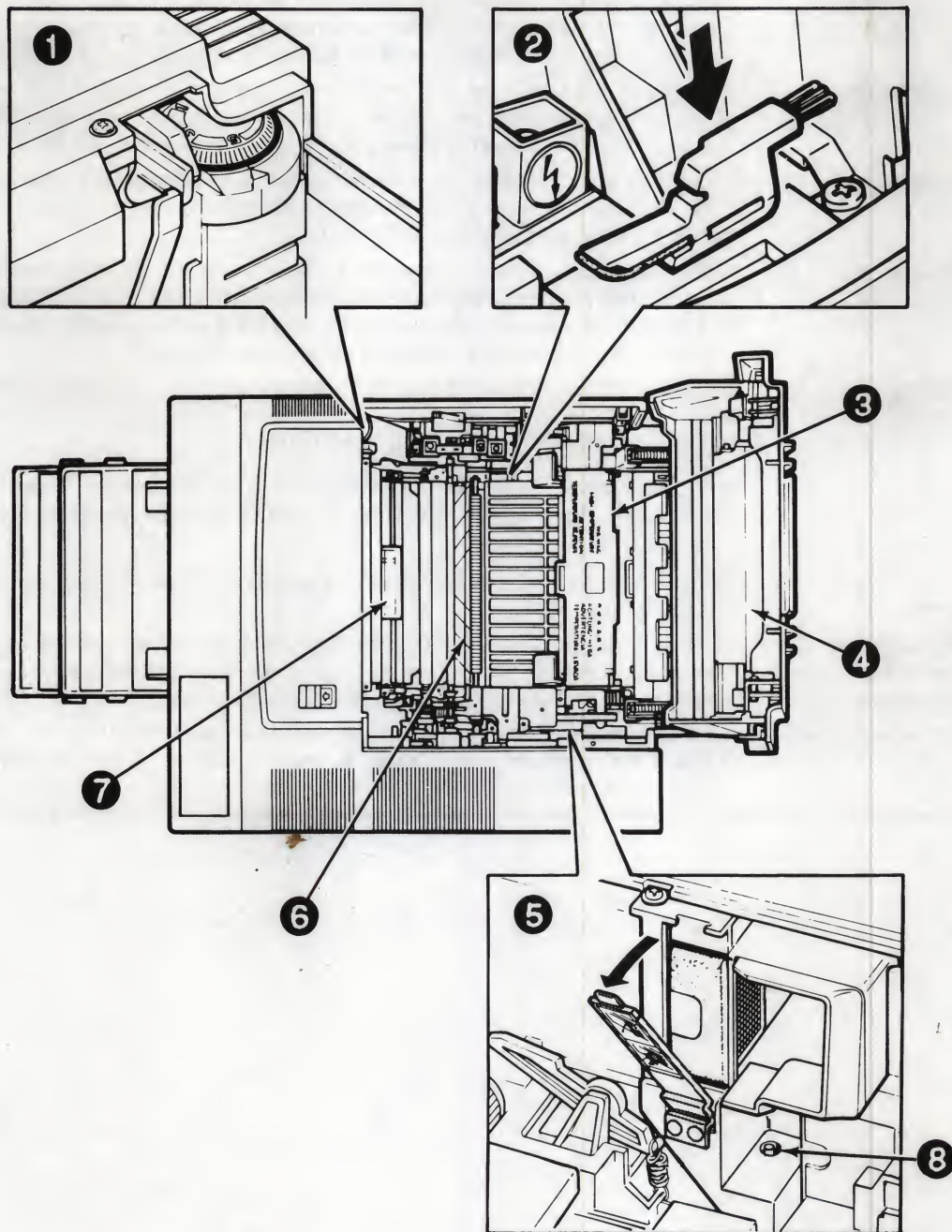
Figure 2-2 Components: Rear View

Table 2-2 Printer Components: Rear View

No.	Component	Function
①	Power switch	Powers the printer on or off. To ensure that data is not lost, always be sure the display reads 00 READY before you power off the printer.
②	Faceup (rear) output stack, shown closed	Printer media is automatically directed into the faceup stack when the faceup stack is pulled open. Select the rear output tray when you are printing transparencies, envelopes, or labels. You can also use it when you want printed output stacked faceup.
③	Memory board access cover	Additional RAM (random access memory) can be added to the printer in 1-, 2-, or 3-Mbyte capacities. Remove the access cover to install the extra memory board. Refer to the documentation that comes with the optional memory boards for installation instructions.
④	Parallel (Centronics™) interface connector	This connector accepts a 32-pin cable and is used for parallel interfacing to a host computer system. The connector is physically and electrically compatible to the Centronics protocol.
⑤	Serial (RS-232-C) interface cable connector	Use this connector to plug in the serial interface cable from the host or communication equipment.
⑥	Power cord connector	This receptacle connects the power cord to the printer.

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Figure 2-3 has numbered callouts to identify the location of the operational components inside the printer. For a description of each numbered callout, refer to Table 2-3.



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Figure 2-3 Components: Internal View

Table 2-3 Printer Components: Internal View

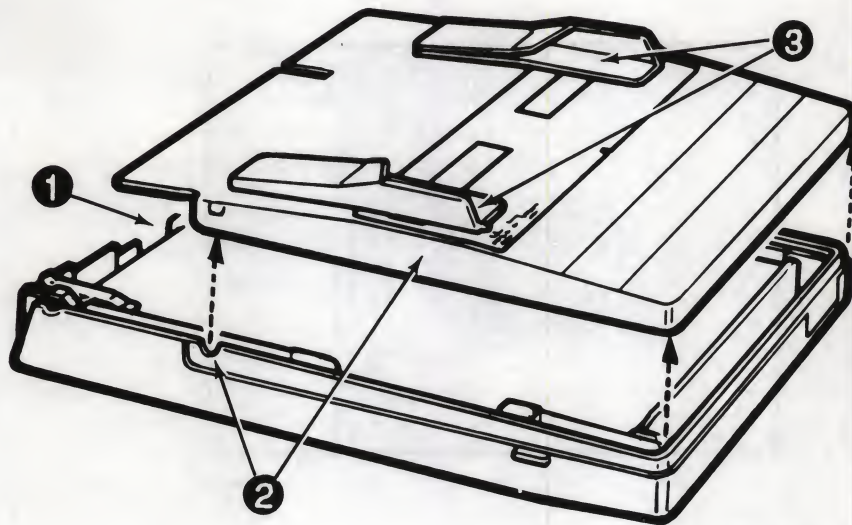
No.	Component	Function
①	Print density dial	The dial has a range of 1-9 to adjust the print density. Selecting the lower numbers results in heavier or darker print density and increases toner consumption. Although the detent action sets the dial to the 5 position, the 7 position is the recommended position for normal operation.
②	Cleaning brush	The green cleaning brush has two cleaning surfaces: the brush end, which is used to clean the discharging pins on the transfer corona assembly; and the fabric end, which is used to clean the primary corona wire in the EP-S cartridge.
③	Fixing unit	The fixing unit consists of a heat roller, a pressure roller, and a roller cleaner. The roller cleaner is a felt pad that cleans the fixing or heat roller and is replaced when the EP-S cartridge runs out of toner.
④	EP-S cartridge	EP-S stands for electrophotographic supply. The EP-S cartridge contains a photo-sensitive drum, the primary charge corona wire, a drum cleaning blade, the toner, and a toner application roller. The EP-S cartridge is replaced when the TONER LOW message is displayed on the control panel.
⑤	Ozone filter	The ozone filter is replaced every 100,000 pages.
WARNING		
Do not operate the printer without the ozone filter in place. The filter removes ozone that is generated by the printer.		
⑥	Transfer corona assembly	The transfer corona (charger) assembly contains the transfer and static eliminator charge wires.
⑦	Paper transfer guide assembly and registration rollers	The assembly consists of the registration rollers and upper cassette paper guide. Lifting the green handle causes the registration rollers to separate, releasing the sheet of paper and easing the removal of jammed paper.
⑧	CB101 reset button	The CB101 reset button pops up when circuit breaker CB101 opens. When the reset button pops up, press it down to reset the CB101. If the reset button pops up again, start troubleshooting a power-up fault.

2.4 PAPER CASSETTES AND MANUAL FEEDERS

Four standard size paper cassettes are available. Each cassette holds up to 200 sheets of 21 lb (80 g/m²) basis weight media. The cassette size is fixed and cannot be configured to hold a different size media. Information on the labeling and sizes of cassettes is in the *DECLaser 2100 Printer Service Guide*.

Figure 2-4 shows the cassette and the following components:

- ❶ The printer reads the molded cassette key to determine the size of the media in the cassette.
- ❷ The clear top of the cassette sits securely in alignment holes.
- ❸ The adjustable guides on the cassette top are used to manually feed media into the printer.



MLO-005015

Figure 2-4 Cassette and Manual Feeder Top

When a cassette is inserted into the empty cassette slot, the following actions occur:

- The foot lever moves the pressure pad down, then up. This action positions the pressure pad for best operation. The pressure pad eliminates multiple feeding.
- The cassette pushes a lifting lever that moves the spring tension pressure lever. The pressure lever lifts and presses the paper stack into the feed roller.
- The cassette key actuates the size-sensing switches in the cassette slot.

Envelope Cassette

The special envelope cassette holds up to 15 envelopes and must be installed in the upper cassette slot of the DEClaser 2100 printer.

NOTE

You cannot attach the optional envelope feeder used on the DEClaser 2200 printer to the DEClaser 2100 printer.

2.5 OUTPUT STACKS AND PAPER PATHS

Figure 2-5 shows the faceup and facedown printout stacking trays on the DEClaser 2100 printer.

The faceup stack is necessary when printing media such as envelopes, labels, or heavy paper stock that is too stiff to bend around the turn leading to the facedown tray.

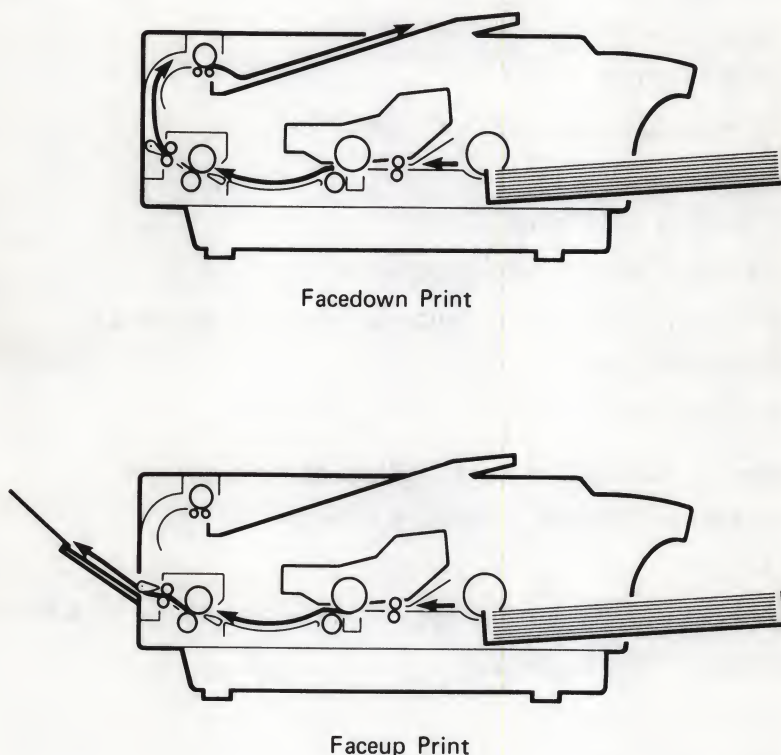


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Figure 2-5 Output Stacks

2.5.1 Paper Paths

Figure 2-6 shows the faceup and facedown paper paths. Mechanical linkages on the faceup (rear) output tray door set the fork gate to direct paper into the faceup (rear) stack as the paper is ejected by the fixing unit rollers.



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Figure 2-6 DEClaser 2100 Paper Paths

2.5.2 Paper Path and Jam Detection Sensing

The fixing unit exit sensor detects all jams in the DEClaser 2100 printer. The dc control board monitors the exit sensor during power-up and at specific times during the print cycle. If paper is detected immediately after power-up, the printer does not warm up, display READY, or go on-line. The printer can be powered up and display READY with paper in the paper path, but not if the paper is under the exit sensor.

During the print cycle, the dc control board compares the timing and sensor events to track the media as it travels through the paper path. The print cycle is initiated when a sheet of paper, or suitable media, is fed into the paper path; the cycle ends at the selected output stack. If the leading or trailing edge of the media fails to actuate the exit sensor within the expected time period, the dc control board shuts down the fixing unit heater and beeps the control panel alarm.

2.6 DESCRIPTION OF THE DEClaser 2200 PRINTER

The DEClaser 2200 printer uses electrophotographic laser technology to print text and graphics at speeds up to 8 pages/minute with a density of 300 x 300 dots/inch. The printer consists of an engine (print mechanism), a duplex unit, and a controller (formatter) that are driven from host-based software to provide shared printer access from the Digital network. The printer can serve as a personal desktop printer or as a shared group printer.

Some features of the DEClaser 2200 printer include:

- Simplex or duplex printing
- Capacity for two external (optional) font cartridges
- Two input cassettes
- Font down-line loading capability
- Support for both serial and parallel interfaces
- Convenient user maintenance (one replaceable supply cartridge)
- Ability to print on envelopes
- Manual feeding capability

The following options are available for the DEClaser 2200 printer:

- 1-, 2-, or 3-Mbyte user-installable memory boards
- Font cartridges
- A font cartridge PostScript® option that converts the printer to a PostScript printer
- Automatic envelope feeder (optional)

Figure 2-7 has numbered callouts to identify the operational components that can be seen from the right side of the printer. For a description of each numbered component, refer to Table 2-4.



Figure 2-7 Components: Right-Side View

Table 2-4 Printer Components: Right-Side View

No.	Component	Function
①	Facedown (top) output tray	Printed sheets are automatically collated and stacked (facedown) here.
②	Top cover release button	Pressing this button unlocks the top cover so it can be opened. Open the top cover to perform certain printer functions such as adding a new electrophotographic-supply (EP-S) cartridge or clearing a paper jam.
③	Carrying grip	Carrying grips are located on the right and left sides of the printer.
④	TEST PRINT button	This button prints the engine test print. Use a pencil or suitable tool to depress the TEST PRINT button.
⑤	Control panel	The control panel consists of a message display, the indicator lights, and a keypad.
⑥	Font cartridge slots	These two slots accept the optional font cartridges available for the printer.
⑦	Upper and lower paper cassettes and manual feed guides	<p>The paper cassette automatically feeds paper to the printer. It can hold up to 200 sheets of 21 lb (80 g/m²) basis weight paper.</p> <p>The manual feed guide allows you to manually feed paper, envelopes, transparencies, and labels into the printer.</p>
⑧	Duplex unit	The duplex unit is a paper path that inverts, aligns, and feeds the sheet from the output of the fixing unit, underneath the print engine, and back into the registration rollers for a second pass or second side printing.

Figure 2-8 has numbered callouts to identify the operational components that can be seen from the rear of the printer. For a description of each numbered component, refer to Table 2-5.

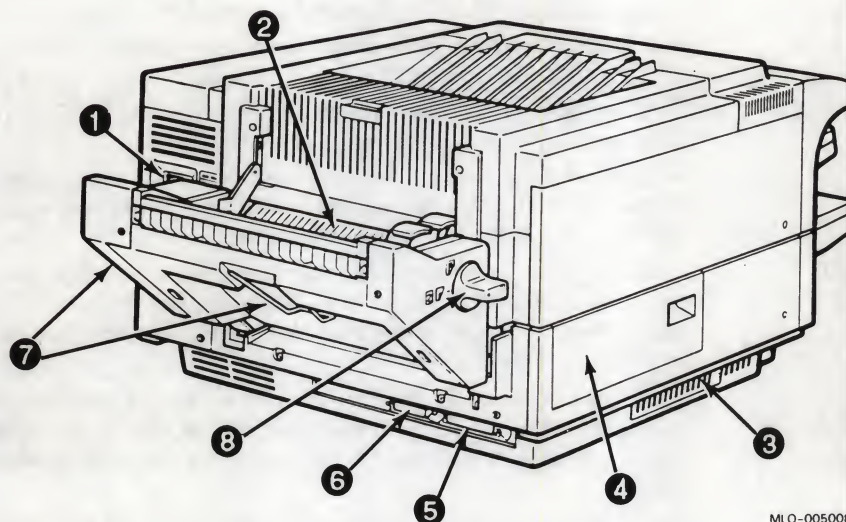
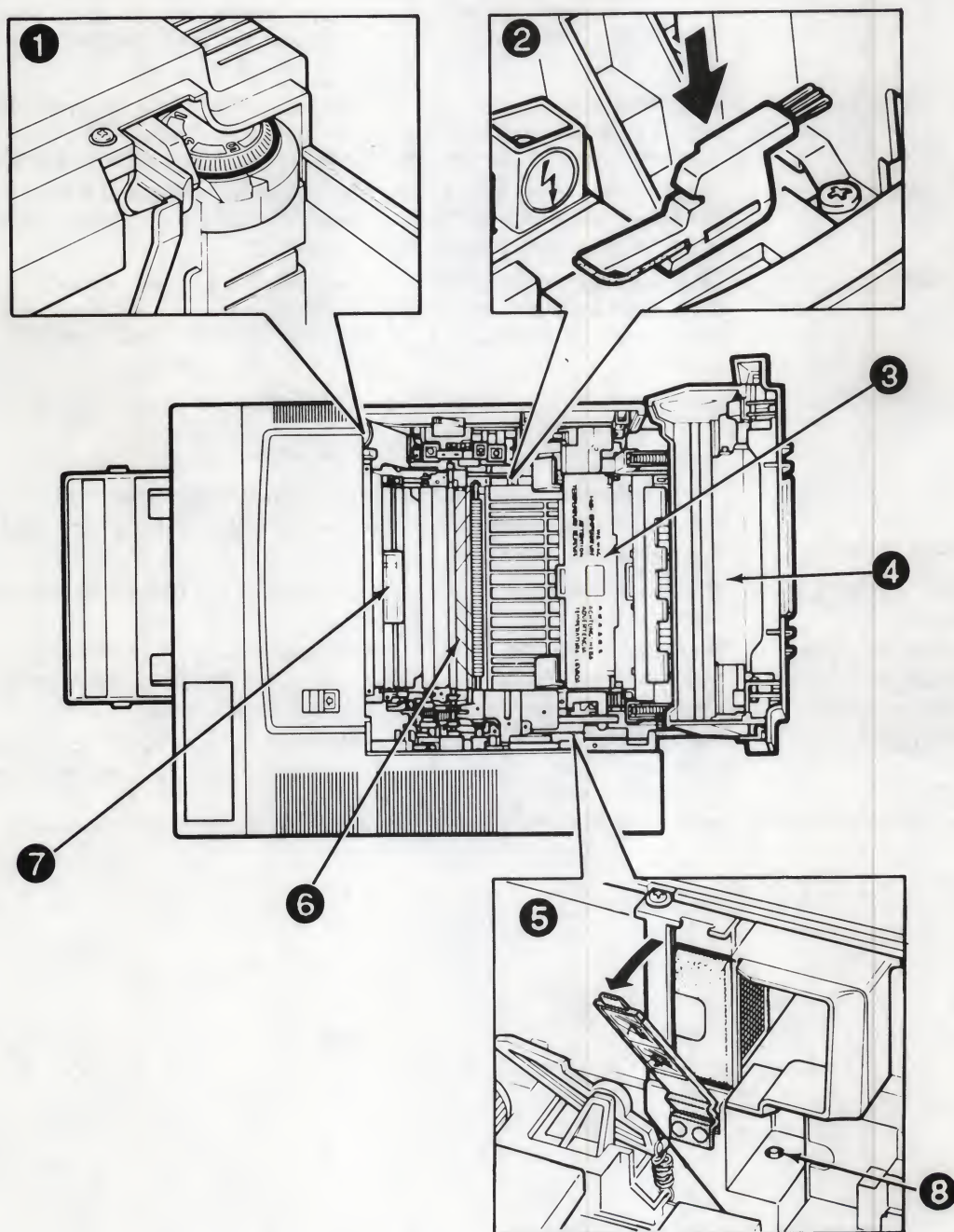


Figure 2-8 Components: Rear View

Table 2-5 Printer Components: Rear View

No.	Component	Function
①	Power switch and cord	Powers the printer on or off. To ensure that data is not lost, always be sure the display reads 00 READY before you power off the printer. The receptacle connects the power cord to the printer.
②	Inverter unit and faceup (rear) stack	During the duplex print cycle, the inverter unit reverses the direction of paper travel and directs the paper into the duplex unit. This change in direction enables the second side (pass) printing. Select the faceup (rear) output stack when you are using certain types of print media such as transparencies and labels. Use the folding paper support to add additional support to the faceup paper stack.
③	Memory board access cover	Additional RAM (random-access memory) can be added to the printer in 1-, 2-, or 3-Mbyte capacities. Remove the access cover to install the extra memory board. Refer to the documentation that comes with the optional memory boards for installation instructions.
④	Duplex side access cover	Open this cover and lift the internal lever to remove jammed paper from the duplex unit. The cover or internal lever can be opened during operation (there is no interlock) but jams will occur if you leave the internal lever in the raised position.
⑤	Parallel (Centronics™) interface connector	This connector accepts a 32-pin cable and is used for parallel interfacing to a host computer system. The connector is physically and electrically compatible with the Centronics protocol.
⑥	Serial (RS-232-C) interface cable connector	Use this connector to plug in the serial interface cable from the host or communication equipment.
⑦	Inverter paper support	This guide supports the sheet when the sheet is partially ejected by the inverter unit.
⑧	Printout selector	Sets the printer for faceup or facedown stacking and duplex operation. If set to the up (clockwise) position, only simplex faceup stacking and printing are possible. If set to the down (counterclockwise) position, only facedown stacking is possible and simplex or duplex printing can be done.

Figure 2-9 has numbered callouts to identify the operational components that are located inside the printer. For a description of each component, refer to Table 2-6.



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Figure 2-9 Components: Internal View

Table 2-6 Printer Components: Internal View

No.	Component	Function
①	Print density dial	The dial has a range of 1-9 to adjust the print density. Selecting the lower numbers results in heavier or darker print density and increases toner consumption. Although the detent action sets the dial to the 5 position, the 7 position is the recommended position for normal operation.
②	Cleaning brush	The green cleaning brush has two cleaning surfaces: the brush end, which is used to clean the discharging pins on the transfer corona assembly; and the fabric end, which is used to clean the primary corona wire in the EP-S cartridge.
③	Fixing unit	The fixing unit consists of a heat roller, a pressure roller, and a roller cleaner. The roller cleaner is a felt pad that cleans the fixing or heat roller and is replaced when the EP-S cartridge runs out of toner.
④	EP-S cartridge	EP-S stands for electrophotographic supply. The EP-S cartridge contains a photo-sensitive drum, the primary charge corona wire, a drum cleaning blade, the toner, and a toner application roller. The EP-S cartridge is replaced when the TONER LOW message is displayed on the control panel.
⑤	Ozone filter	The ozone filter is replaced every 100,000 pages.
WARNING		
Do not operate the printer without the ozone filter in place. The filter removes ozone that is generated by the printer.		
⑥	Transfer corona assembly	The transfer corona (charger) assembly contains the transfer and static eliminator charge wires.
⑦	Paper transfer guide assembly and registration rollers	The assembly consists of the registration rollers and upper cassette paper guide. Lifting the green handle causes the registration rollers to separate, releasing the sheet of paper and easing the removal of jammed paper.
⑧	CB101 reset button	The CB101 reset button pops up when circuit breaker CB101 opens. When the reset button pops up, press it down to reset the CB101. If the reset button pops up again, start troubleshooting a power-up fault.

2.7 MEDIA INPUT FEEDERS AND CASSETTES

The following input devices are used to feed media into the DEClaser 2200 printer:

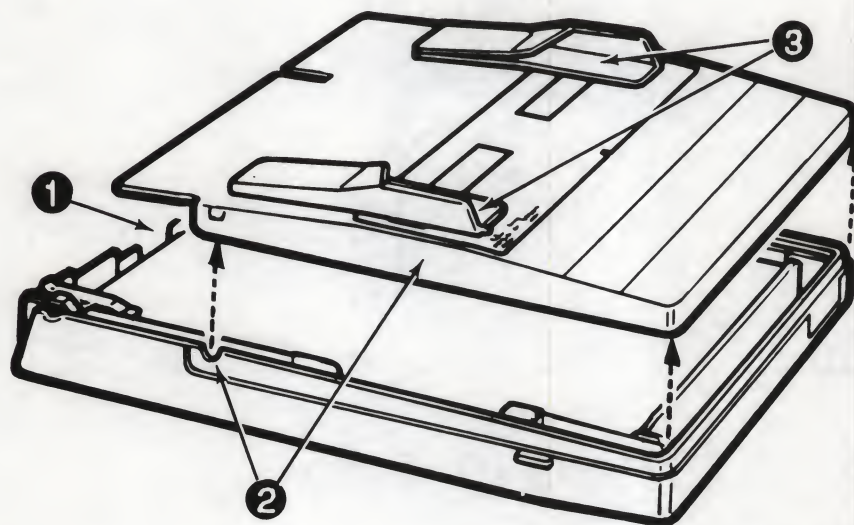
- Upper or lower paper cassettes
- Upper or lower manual feeders
- Envelope cassette
- Envelope feeder (optional)

Paper Cassettes and Manual Feeders

Four standard-size paper cassettes are available. Each cassette holds up to 200 sheets of 21 lb (80 g/m²) basis weight media. The cassette size is fixed and cannot be configured to hold a different size media.

Figure 2-10 shows the cassette and the following components:

- ① The printer reads the molded cassette key to determine the size of the media in the cassette.
- ② The clear top of the cassette sits securely in alignment holes.
- ③ The adjustable guides on each cassette top are used to manually feed media into the printer.



MLO-005015

Figure 2-10 Cassette and Manual Feeder Top

When a cassette is inserted into an empty cassette slot, the following actions occur:

- A foot lever moves the pressure pad down, then up. This action positions the pressure pad for best operation. The pressure pad eliminates multiple feeding.
- The cassette pushes a lifting lever that moves the spring tension pressure lever. The pressure lever lifts and presses the paper stack into the feed roller.
- The cassette key actuates the size-sensing switches in the cassette slot.

Envelope Cassette

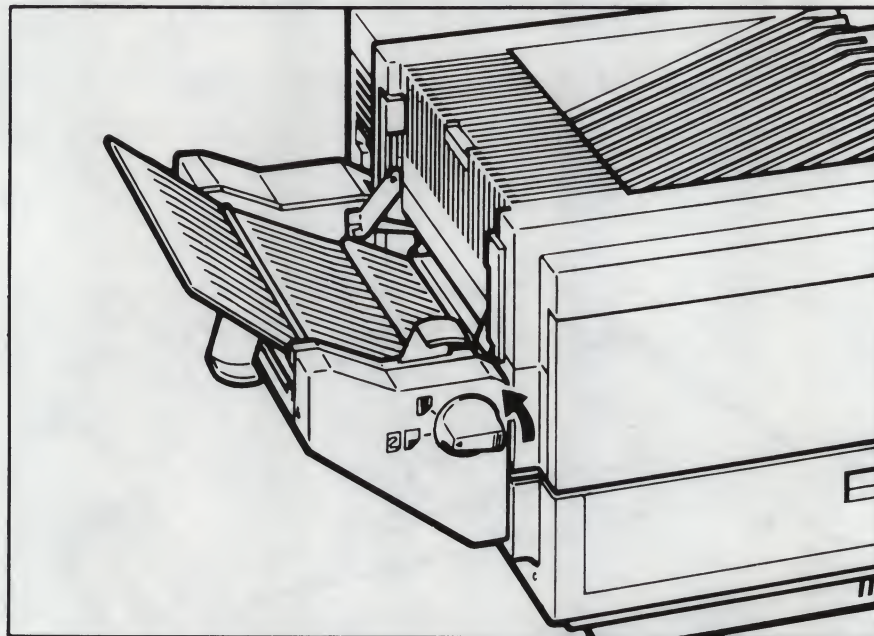
The special envelope cassette holds up to 15 envelopes and must be installed in the upper cassette slot of the DEClaser 2200 printer. The 18 EC INCORRECT error message is displayed when you install the envelope cassette in the lower cassette slot.

NOTE

Do not confuse the envelope cassette with the optional envelope feeder.

2.8 OUTPUT STACKS AND PAPER PATHS

Figure 2-11 shows the faceup and facedown printout stacking trays on the DEClaser 2200 printer. When the faceup stacking tray is selected, only simplex printing can be done. The facedown stack is automatically selected when duplex printing.

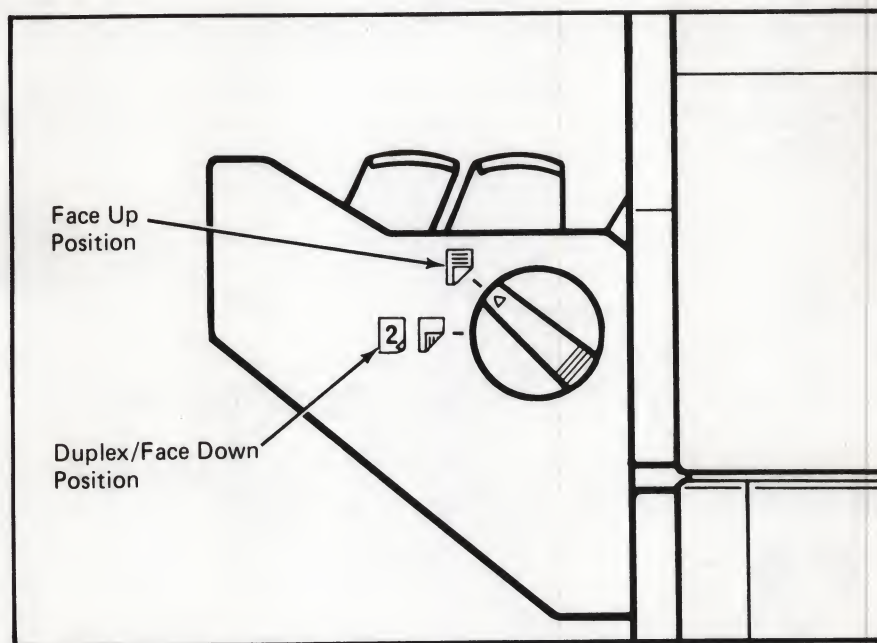


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Figure 2-11 Output Stacks

Figure 2-12 shows the printout selector. The faceup and duplex paper paths are controlled by the printout selector. The selector raises and lowers the faceup gate and locks the fork gate. The printout selector switch detects the position of the printout selector and signals the dc control board.

Incorrect setting of the printout selector in conjunction with other controls displays the 19 PAPER PATH messages discussed in the troubleshooting unit of this course.



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Figure 2-12 Printout Selector

Figure 2-12 shows the printout selector and the two icons that indicate whether the reverse side of the sheet is printed on or is blank.

- When the printout selector is set to the upper position, only simplex printing and faceup stacking are possible.
- When the selector is set to the 2 position, duplex printing and facedown stacking are possible.

The printout selector switch signals the position of the printout selector to the dc controller board. Paper path errors or control panel beeps occur when the printout selector is mispositioned with respect to envelope feeding or duplex operation.

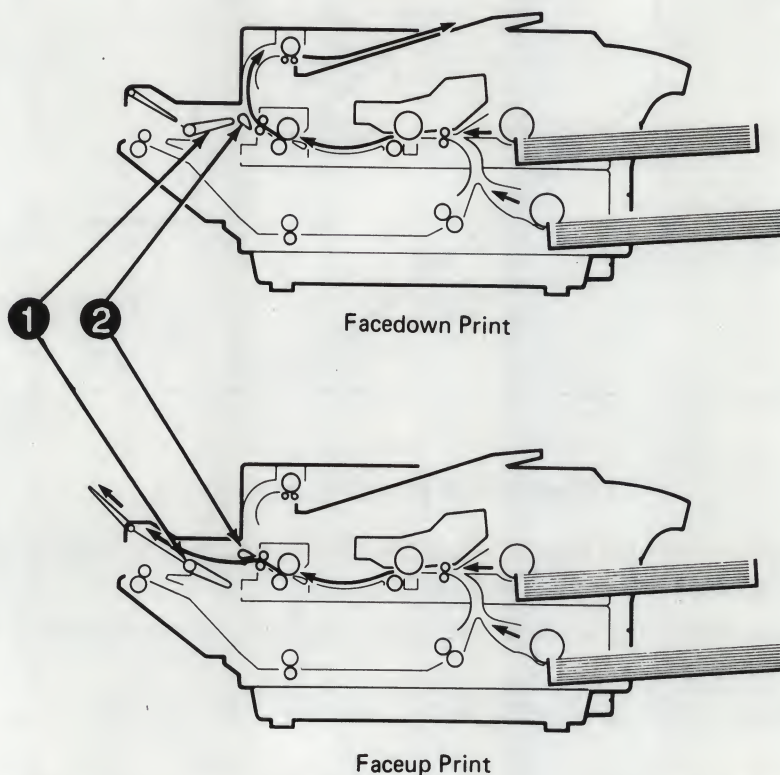
2.8.1 Paper Paths

Simplex Paper Path

Figure 2-13 shows the faceup and facedown paper paths. The setting of the printout selector determines which path is used. Paper is fed into the printer from the upper or lower pickup rollers. The paper is printed, passes through the fixing unit, and is directed by the fork gate into the faceup or facedown stacks.

When the printout selector is set to the simplex faceup position, the fork ① and faceup ② gates are locked in position to direct paper to the faceup stack. See Figure 2-13.

When the printout selector is set to the facedown duplex position but simplex printing is selected, the faceup and fork gates are locked in position to direct the paper up into the facedown stack. See Figure 2-13.



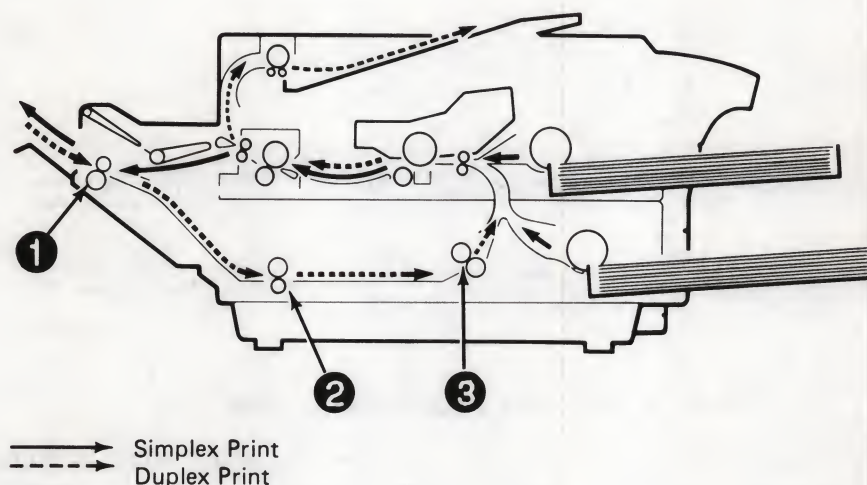
MLO-005012

Figure 2-13 DEClaser 2200 Paper Paths

Duplex Paper Path

Figure 2-14 shows the duplex printing paper path. When printing duplex, the paper is printed on one side, inverted, aligned, and fed back into the registration rollers for the second pass printing.

The printout selector must be set to the facedown position. This setting raises the faceup gate and blocks the faceup paper path.



MLO-005014

Figure 2-14 Duplex Paper Paths

Side one is printed and passes through the fixing unit rollers. The leading edge of the paper is directed down by the fork gate and down again by the faceup gate into the inverter paper path and into the nip of the inverter rollers ①.

The inverter rollers pull the paper clear of the inverter sensor (Figure 2-15), which signals the dc control board to reverse the direction of the inverter rollers. In the reverse direction, the paper is pushed down into the alignment rollers of the duplex unit ②.

In the duplex unit, the alignment rollers and guide plate align the sheet of paper for the second pass printing, push the paper into the nip of the second pass rollers ③, and trip the second pass sensor.

The second pass rollers, under control of the dc control board, feed the paper up into the registration rollers for the second side or second pass printing.

The second side of the paper is printed and as the paper emerges from the fixing unit, it is directed into the facedown stack by the facedown fork gate.

2.8.2 Paper Path Jam Detection Circuits

The paper path sensors monitor the progress of a sheet of paper through the duplex paper path. The sensors are actuated by linkages that protrude into the paper path and are deflected by the forward-moving paper.

Figure 2-15 shows the location of the: ① fixing unit exit, ② inverter, and ③ second pass sensors. It also shows the duplex paper path, the rollers, and the facedown fork gate.

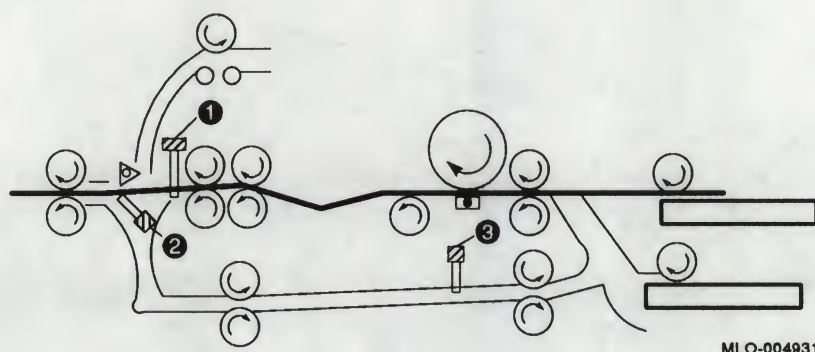


Figure 2-15 Paper Path Sensor Locations

The dc control board monitors the sensors during power-up and at specific times during the print cycle. During power-up, the fixing unit exit and second pass sensors are checked. If either sensor detects paper, the printer does not warm up, display READY, or go on-line. The printer can be powered up and display READY with paper in the paper path, but not if the paper is under either sensor.

During the print cycle, the dc control board compares the timing and sensor events to track the paper as it travels through the paper path. The print cycle is initiated when a sheet of paper is fed into the paper path; the cycle ends at the selected output stack. If the leading or trailing edge of the paper fails to actuate a sensor within the expected time period, the dc control board lights the control panel jam indicators, shuts down the fixing unit heater, and causes the control panel beeper to sound.

The three jam indicators show the most probable location of a paper jam. One sheet of paper can cause one, two, or all three indicators to light.

UNIT 3

DEClaser 2100 CONTROL PANEL OPERATION

3.1 INTRODUCTION

This unit describes DEClaser 2100 operation. It contains information on paper loading, test prints, control panel operation, and printer configuration.

3.2 OBJECTIVES

Upon successful completion of Unit 3, the CSE should be able to:

1. Operate the DEClaser 2100 printer.
2. Understand the DEClaser 2100 control panel indicators.
3. Configure the DEClaser 2100 printer.

3.3 CONTROL PANEL KEYS AND INDICATORS

This unit describes the operation of the control panel on the DEClaser 2100 printer.

- Table 3-1 describes the indicators.
- Table 3-2 and Table 3-3 describe the keys.
- Table 3-4 describes the setup, feature, and value menus.

Control Panel Modes

The DEClaser 2100 printer runs in either the on-line READY or off-line READY mode of operation. The On Line indicator shows the on- or off-line status. The text 00 READY is displayed when the printer is ready to receive commands.

The on-line READY mode means that the printer is ready to receive commands or a text or font file from the host system. Most of the keypad keys are disabled when the printer is on-line. If you press a disabled key, the control panel beeper sounds and the key is ignored.

The off-line READY mode means that the printer is ready to receive commands from the control panel. You can activate any of the keypad functions shown in Figure 3-3 when the printer is in the off-line READY mode.

NOTE

The text 00 READY can be replaced or modified by a firmware enhancement (upgrade) cartridge (for example, the PostScript® option cartridge that installs in font cartridge slot A).

3.3.1 Control Panel Indicators

Figure 3-1 shows the location of all indicators; Table 3-1 describes how they work.

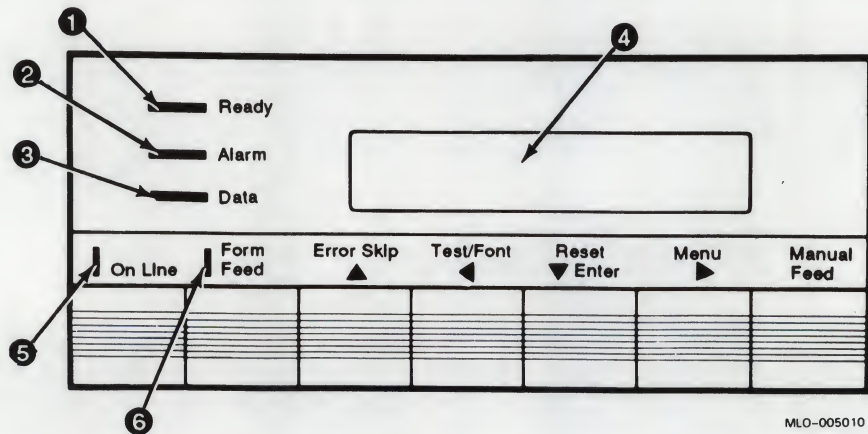


Figure 3-1 Control Panel Indicators

Table 3-1 Control Panel Indicators

No.	Indicator	Function
①	Ready ¹	The indicator is either on, off, or flashing. If on, the printer is ready. If flashing, the printer is performing a function (for example, the printer is warming up) and you must wait.
②	Alarm ²	Indicates a status condition that is disabling the printer. Alarm conditions require the attention of an operator or service person. The display panel identifies the nature of the alarm indication.
③	Data ¹	Indicates the condition of the buffer memory. The indicator is either on, off, or flashing. If on, there is print data in the buffer. If off, the buffer is empty. If flashing, the buffer is receiving print data from the host system.

NOTE

Buffer memory is separated into two buffers. The page buffer memory contains page data. The receive buffer memory contains temporary data.

④	Message display ¹	<p>A 1-line, 16-character liquid crystal display. During on-line or off-line operation, a 2-digit status code and a summary status message are displayed. When the printer is in the setup menu, a horizontal setup menu is displayed. See Section 3.4 and Table 3-4 for information on the setup menus.</p> <p>With the exception of 00, all 2-digit status numbers flash to attract the attention of the operator. To interpret the display messages, refer to one of the following tables:</p> <ul style="list-style-type: none">• Table 5-1 Operational Status Messages• Table 5-2 Operator Call Messages• Table 5-3 Functional Messages• Table 5-4 Service Messages
⑤	On Line ¹	The indicator is either on, off, or flashing. If on, the printer is on-line. If off, the printer is off-line. It flashes when the printer is switching to the off-line state.
⑥	Form Feed ¹	The indicator is either on, off, or flashing, and works in conjunction with the Form Feed . If on, the printer is printing the remaining buffered data. If off, there is no form feed activity. If flashing, the print command is canceled.

¹ Color is green when lit.

² Color is orange when lit.

3.3.2 Control Panel Keys

Figure 3-2 has numbered callouts to identify the location of the control panel keys. Refer to Table 3-2 for a description of the function of each numbered key.

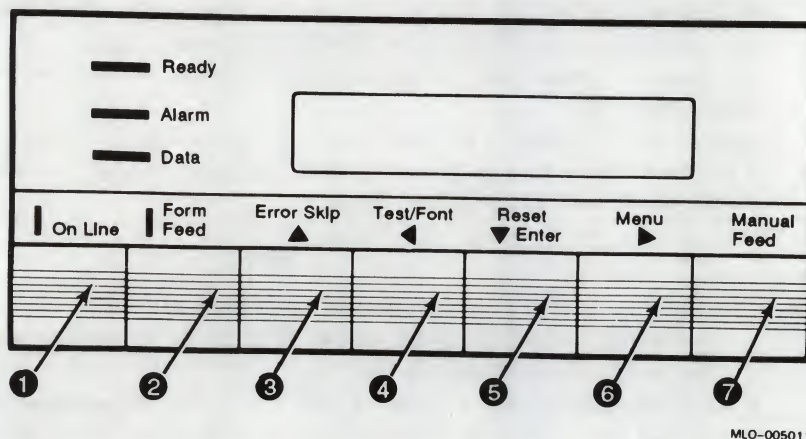


Figure 3-2 DEClaser 2100 Keypad Keys

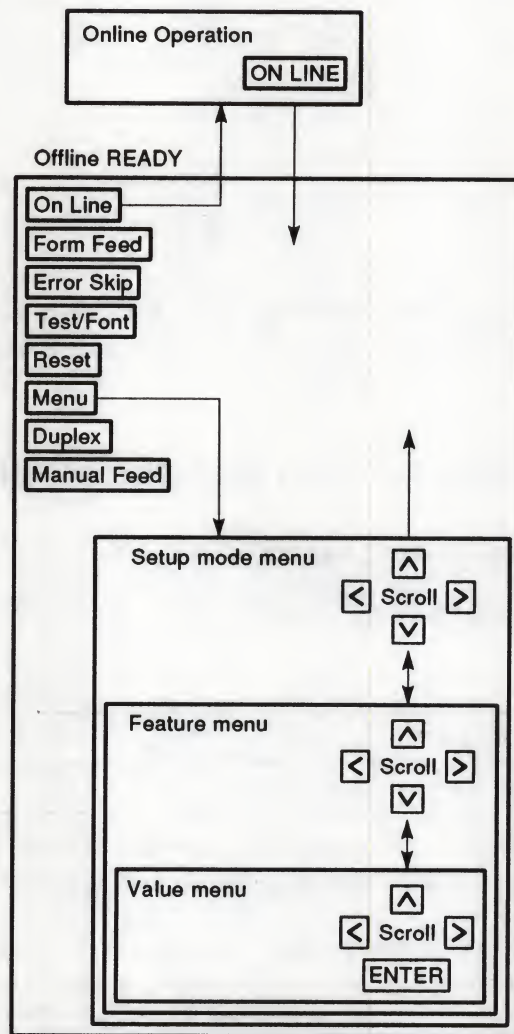
Table 3-2 Off-Line READY Keys

No.	Key	Function
1	On Line	Toggles the printer between the on-line and off-line states. In on-line READY mode, the printer can receive, buffer, and print data from the host system. In the off-line READY mode, the printer can generate and print internal test pattern data. If the printer is set off-line while receiving data or printing, the reception is abruptly terminated but the full page is printed.
2	Form Feed	Activates the form feed process to print remaining buffer data and eject paper from the printer. The key works only when the Data and Ready indicators are on, and when the printer is off-line.
3	Error Skip	Returns the printer to the off-line READY mode from an error or alarm condition, and clears the Alarm indicator and the display message.
4	Test/Font	Pressing this key causes the following actions: <ul style="list-style-type: none"> Press once, prints one TEST PRINT A. Press twice, prints one FONT LIST A. Press and hold, continuously prints TEST PRINT B. Press again to stop. Pressing the key multiple times stops the test and displays the TEST STOP message.
5	Reset Enter	Pressing Reset clears the data from the DRAM, selects the values stored in RAM as current settings, and if depressed for longer than 10 seconds, activates the Character Dump mode. See Section 3.6.
6	Menu	Causes the printer to enter the setup menu and redefines the function of the dual-labeled keys. Section 3.4 gives more information about the setup menus.
7	Manual Feed	Toggles the printer between manual and automatic paper feeding modes of operation. When set to manual, the display prompts you to load a sheet of paper into the manual feeder. When the manual feed sensor detects the paper, the dc control board activates the paper feed clutch and feeds the paper into the registration rollers.

¹See Table 3-3 for a description of this menu scrolling key.

3.4 SETUP MENU OPERATION

As shown in Figure 3-3, when you press **Menu** you enter the first of a 3-level setup menu. Table 3-4 lists all the setup, feature, and value menus.



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Figure 3-3 DEClaser 2100 Keypad Operation

3.4.1 Setup Menu Format

The horizontal format of the text in the setup menu is unique. Figure 3-4 shows how the text appears in the window when the printer is in a setup, feature, or value menu. You press the function keys to move through the selection. The selected text is left-justified and is indicated by an underline cursor. Ignore any text, separated by a space, on the right of the display.

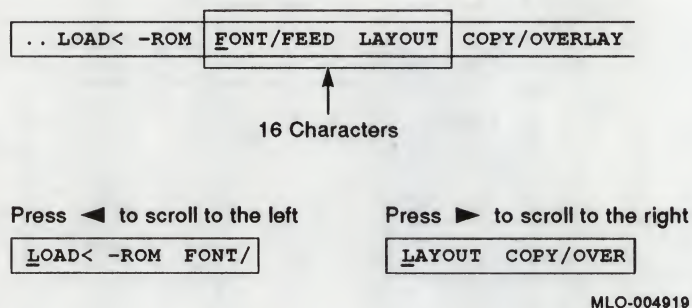


Figure 3-4 Setup Menu Display Text

3.4.2 Moving, Selecting, and Saving Values

Table 3-3 shows the action of the function keys when you scroll through the setup, feature, and value menus.

Table 3-3 Menu Scrolling Keys

Key	Function
	Shifts down through the feature and value menus. Downshifting stops after the value menu.
	Shifts up through the value, feature, and setup menus. Upshifting stops at the off-line READY level.
and	Use for scrolling through the selection of the setup, feature, and value menus. The circular scrolling action returns to the starting selection after stepping through each available selection. When a scrolling key is pressed, the text and cursor move. The selected text is left-justified and is indicated by an underline cursor.
	Enters the selected value into the operational memory space and marks the value with an equal (=) sign .

3.4.3 Setup Menu

Table 3-4 describes the setup, feature, and value menus.

Table 3-4 DEClaser 2100 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
FONT/FEED	feeder	Cass. =Manual	Operates exactly the same as pressing Manual Feed . It sets up the DEClaser 2100 to feed paper manually one sheet at a time or automatically from the installed cassette. When set to manual, the display prompts you to load a sheet of paper into the manual feeder. When the manual feed sensor detects the paper, the dc control board activates the paper feed clutch and feeds the paper into the registration rollers.
LAYOUT	offsetX offsetY	n.n =0.0	The offset function shifts the printed image on the page in two dimensions. The X dimension shifts from side to side. The start of the beam on the OPC drum is varied. The Y dimension shifts the image from leading to trailing edge. The same value format is used for the offsetX and offsetY parameters. If you select ± 0.0 , the image is close to center. If you select ± 10 , the shift is maximum. The shift values change in increments of ± 0.5 . Each 0.05 increment is equal to 15 dots or 0.05 in (1.27 mm). 1.0 ± 0.05 ?
LAYOUT (Cont.)	autoNL	=ON OFF	Determines if the line of text is truncated or wrapped at the right-hand margin. When set to ON, the printer automatically inserts a carriage return and line feed character to wrap the text on the next line. When set to OFF, the printer truncates the line at the right-hand margin.
COPY/OVERLAY	copy	nn =00	Determines the number of copies of a page that the printer prints. For example, if set to =05 , five copies of each page are printed before the the printer accepts the next page from the host system. The number counts from 01-99 in increments of 1.0.

¹The LOAD<- ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

Table 3-4 (Cont.) DEClaser 2100 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
COMMAND	message	English Finnish French German Italian Japan Norway Port. Spanish Swedish Danish Dutch	The language text will appear on the display when the printer is in the on-line READY mode. The setup menus always are displayed in English.
INITIAL	macro	yyy 000	Counts up or down from 000-099 in increments of 1.0. The macro feature is used to set the printer environment to match that of the host system. The macro number is a combination of the device identification and character set (Cset) numbers. The sum of the two numbers is entered as the macro number. 0-18
mem. use. INITIAL (Cont.)	paint	=Partial Full Dual	The amount of available memory determines which values are displayed. <ul style="list-style-type: none"> • If the minimum amount of memory is installed (1024 Kbytes), you can only select the Partial value; Full and Dual are not displayed. • If the 1-Mbyte optional memory is installed, you can select Partial or Full; Dual is not displayed. • If either 2-Mbyte, 3-Mbyte, or more of optional memory is installed, you can select Partial, Full, or Dual. <p>The paint selection allocates the size of the font cache and page areas of available memory. As more and more processed (bitmapped) fonts are cached, more of the available memory is utilized; this leaves less room for bitmapped print data and slows down the printer. More time is required to bitmap a smaller area, which eventually causes the 21 COMPLEX DATA message to be displayed. See Table 5-3 for additional information.</p> <ul style="list-style-type: none"> • When you select Partial, a portion of a page is bitmapped, then printed. • When you select Full, one full page is bitmapped, then printed. • When you select Dual, two complete single-page bitmaps are reserved in memory. This enables the printer to simultaneously print page one and bitmap page two.

¹The LOAD← ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

Table 3-4 (Cont.) DEClaser 2100 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
INTERFACE	i/f	=RS232C CENTRO	<p>If you select CENTRO, the parallel 8-bit Centronics™ port is activated. There are no features or values associated with the CENTRO selection. All speeds and signals are fixed.</p> <p>If you select RS232C, the serial RS-232-C compatible port is activated.</p> <p>The following parameters are always printed on the TEST PRINT A sheet, but are displayed only when RS232C is selected.</p> <p>baud</p> <p>rsmode</p> <p>dtr</p> <p>xon/xoff</p> <p>etx/ack</p>
INTERFACE (Cont.)	baud ²	19200 9600 4800 =2400 1200 600 300	Establishes the baud rate of the serial port. The baud rate of the printer must match the baud rate of the host system.
INTERFACE (Cont.)	rsmode ²	8S 8SS =7OS 7ES 7OSS 7ESS 8OS 8ES	<p>The values define the characteristics of the RS-232-C serial data byte and must match the host system. The following example shows the format:</p> <p>8OS</p> <p>where:</p> <p>8 is the number of data bits.</p> <p>O means odd parity, E means even parity, and no O or E means no parity checking.</p> <p>S means one stop bit is used.</p>
INTERFACE (Cont.)	dtr ²	READY-H =Fix-H	Sets the state of the serial connector DTR signal to be fixed or conditional to the on-line READY state of the printer.
INTERFACE (Cont.)	xon/xoff ²	=ON OFF	If you select ON, XON/XOFF flow control is enabled.
INTERFACE (Cont.)	etx/ack ²	=ON OFF	If you select ON, ETX/ACK flow control is enabled.
SAVE→RAM	ok	—	Writes the selected value of COPY/OVERLAY and autoNL into RAM.

¹The LOAD← ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

²This value appears only if you select RS-232-C.

Table 3-4 (Cont.) DEClaser 2100 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
SAVE->NVRAM	ok	-	Writes all the selected values into NVRAM. The contents of NVRAM are retained through a power-down cycle.
LOAD<-ROM	ok	-	Loads all factory values from ROM to selected values.

¹The LOAD<- ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

3.5 TEST PATTERNS

Four internal patterns can be printed when the printer is in the off-line READY mode.

Pressing **Test/Font** prints the TEST PRINT A, TEST PRINT B, and font test patterns.

Pressing the TEST PRINT button prints the engine test pattern.

3.5.1 TEST PRINT A

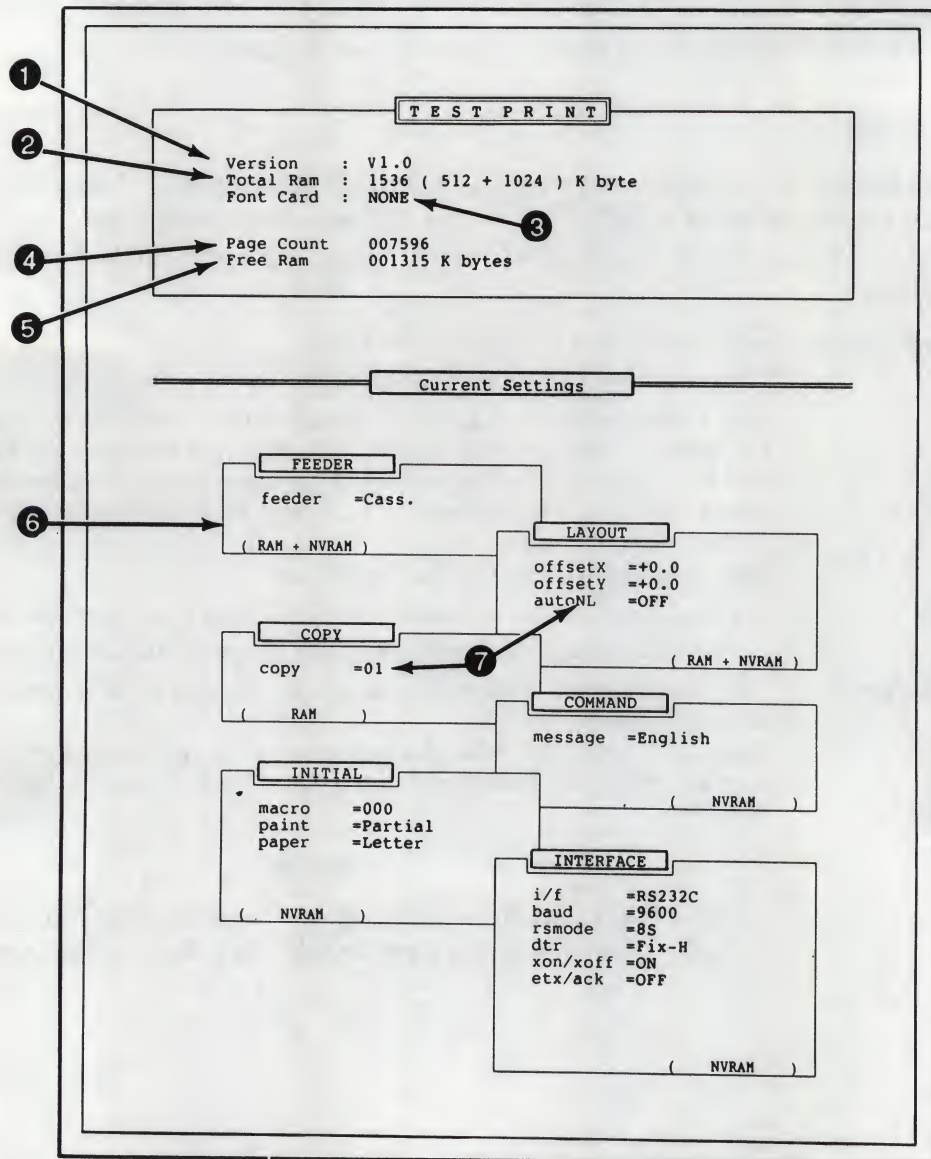
Press **Test/Font** briefly to print one copy of TEST PRINT A. Figure 3-5 is a copy of TEST PRINT A. The section labeled TEST PRINT is a status configuration listing. The section labeled Current Settings shows the selected value of every setup feature. See Table 3-4 for more information.

The numbered callouts in Figure 3-5 are described below.

- | | |
|--------------------|---|
| ① Version | The version line lists the current revision level of the printer firmware. |
| ② Total Ram | Lists the amount of random-access memory (RAM) available in the printer. From the example shown in Figure 3-5, you can determine that there are 1024 Kbytes of RAM. This is the minimum amount of memory and represents the internal stock memory. This number increases by 1-, 2-, or 3-Mbyte increments when you add a memory expansion option. |
| ③ Font Card | Shows the number of installed font cartridges. |
| ④ Page Count | The page count number is incremented by one each time the printer prints a page. |
| ⑤ Free Ram | Indicates the amount of unused or available dynamic RAM (DRAM) space. |
| ⑥ Current Settings | The current settings block text shows you the selected value for each feature in every setup menu.
The area of memory in which the values can be stored are also shown. For example, (RAM + NVRAM) means the current setting can be stored in RAM or NVRAM. |

NOTE

The RAM text in some memory blocks is misleading. The only values you can save to RAM are ⑦ copy and autoNL.



MLO-005019

Figure 3-5 TEST PRINT A

3.5.2 Font List

The Font List (Figure 3-6) is a sample listing of all character sets available to the printer. The list includes the following:

- Internal fonts that are installed in the firmware of the printer
- Cartridge fonts
- Down-line loaded fonts from a host system

Fonts are selected by escape sequences sent from the host computer. You cannot select a font from the control panel.

To print the Font List, press **Test/Font** twice. The text 06 FONT LIST A is displayed while the Font List is printing. The complete Font List is usually several pages long.

MLO-004853

3-14 DEClaser 2100 CONTROL PANEL OPERATION

3.5.3 TEST PRINT B

barber pole

The TEST PRINT B pattern shown in Figure 3-7 consists of an incrementing alphanumeric test pattern. The start of each line is offset by one character, and a full page of the pattern shows a spiraling effect. The TEST PRINT B pattern is a useful troubleshooting tool for the following reasons:

- The pattern of sequentially changing characters is printed across the entire page and is readable. You can easily see any missing characters, changes in image density, and most image defects.
- You can target specific areas of the paper path by selecting duplex, faceup, or facedown stacking.
- The TEST PRINT B pattern runs continuously, which exercises the printer and enables you to thoroughly test the printer in off-line operation.
- The continuous operation can be used as a confidence test to assure any personnel working on high-level printer problems that the printer is operating correctly.

To print TEST PRINT B, press and hold **Test/Font** for about five seconds until the 01 TEST PRINT B message is displayed. The printer then continuously prints the test pattern until you press **Test/Font** or **On Line** or until the paper supply runs out.

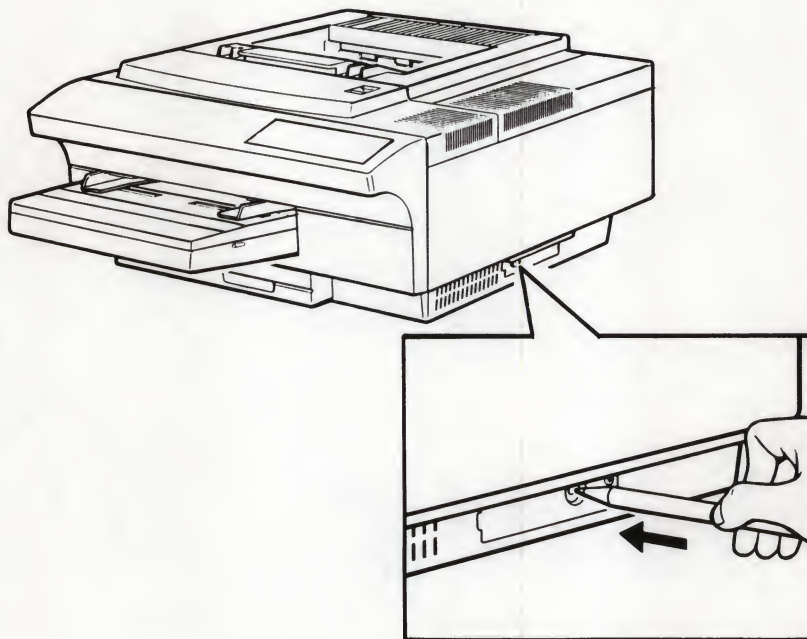
ML0-004852

3.5.4 Engine Test Print

Figure 3-8 shows the location of the TEST PRINT button.

Use a pencil or other suitable tool to press the TEST PRINT button. The printer responds as follows:

1. If the printer is on-line and printing, the current job finishes printing.
2. The On Line indicator goes off.
3. The orange Alarm indicator lights.
4. The text 15 ENGINE TEST is displayed.
5. One simplex copy of the test pattern is printed (Figure 3-9).
6. After printing, the printer returns to the off-line READY mode.



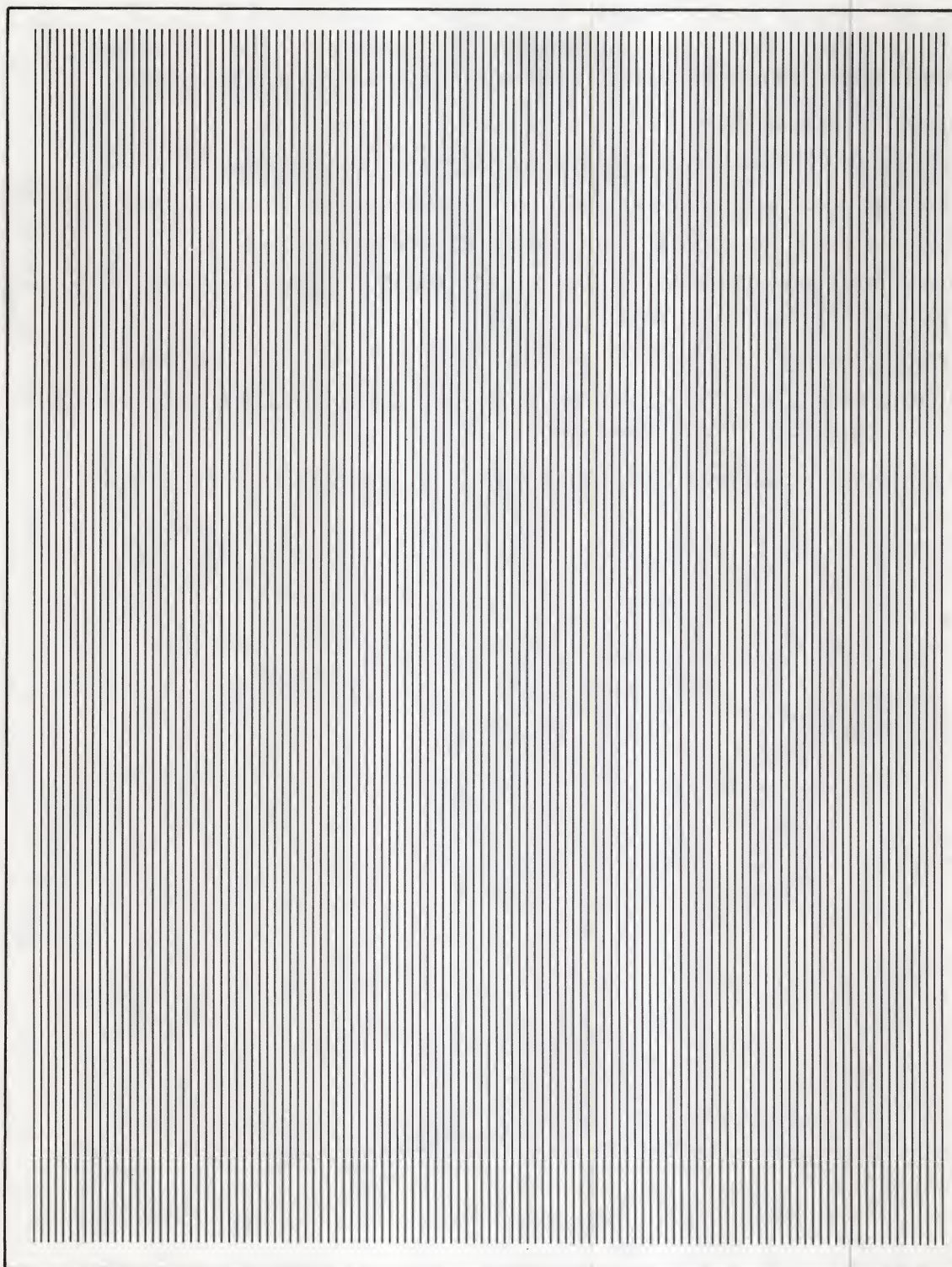
MLO-004850

Figure 3-8 Pressing the TEST PRINT Button

Figure 3-9 is an example of the Engine Test Print. The control panel test patterns are generally more useful for troubleshooting. The Engine Test Print is commonly used for the following purposes:

- To verify the condition of the print engine.
- To check toner dispersion and line weight.
- If the control panel is nonoperational, the Engine Test Print is a good indicator of the condition of the print engine.

The white area of the Engine Test Print should be free of toner or smudges, and the lines must print cleanly across the entire page with no faded areas. If the print quality is poor, refer to Unit 5.



MLO-004525

Figure 3-9 Engine Test Print

3.6 CHARACTER DUMP MODE

The Character Dump mode is used to print out raw (unprocessed) data or commands sent from the host computer. When the Dump mode is activated, the printer prints all the normally invisible control characters, such as carriage returns and line feeds.

Use the following procedure to activate the Character Dump mode:

1. If the printer is on-line, press **On Line** to place the printer off-line.
2. Press and hold **Reset** for about 10–20 seconds, then release.
3. While you are holding the key, the text 03 RESET is displayed.
4. Shortly after you release the key, the text 00 READY DUMP is displayed and the printer is in the Character Dump mode.
5. Press **On Line** to place the printer on-line.

The printer is now in the Character Dump and on-line READY modes, and will accept data or commands from the host system.

To exit the Dump mode, press **On Line** to set the printer off-line, then press **Reset**.

UNIT 4

DEClaser 2200 CONTROL PANEL OPERATION

4.1 INTRODUCTION

This unit describes DEClaser 2200 operation. This information includes paper loading, test prints, control panel operation, and printer configuration.

4.2 OBJECTIVES

Upon successful completion of Unit 4, the CSE should be able to:

1. Operate the DEClaser 2200 printer.
2. Understand the DEClaser 2200 control panel indicators.
3. Configure the DEClaser 2200 printer.

4.3 CONTROL PANEL KEYS AND INDICATORS

This unit describes the operation of the control panel on the DEClaser 2200 printer.

- Table 4-1 describes the indicators.
- Table 4-2 and Table 4-3 describe the function keys.
- Table 4-4 describes the setup, feature, and value menus.

Control Panel Modes

The DEClaser 2200 printer runs in either the on-line READY or off-line READY mode of operation. The On Line indicator shows the on-line or off-line status. The 00 READY text is displayed when the printer is ready to receive commands.

The on-line READY mode means that the printer is ready to receive commands or a text or font file from the host system. Most of the keypad keys are disabled when the printer is on-line. If you press a disabled key, the control panel beeper sounds and the key is ignored.

The off-line READY mode means that the printer is ready to receive commands from the control panel. You can activate any of the keypad functions shown in Figure 4-3 when the printer is in the off-line READY mode.

NOTE

The text 00 READY can be replaced or modified by a firmware enhancement (upgrade) cartridge (for example, the PostScript® option cartridge that installs in font cartridge slot A).

4.3.1 Control Panel Indicators

Figure 4-1 shows the location of all indicators; Table 4-1 describes how they work.

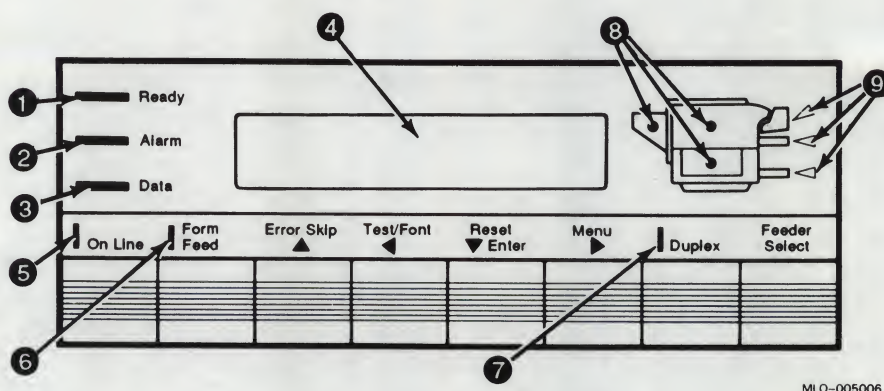


Figure 4-1 Control Panel Indicators

Table 4-1 Display Panel Indicators

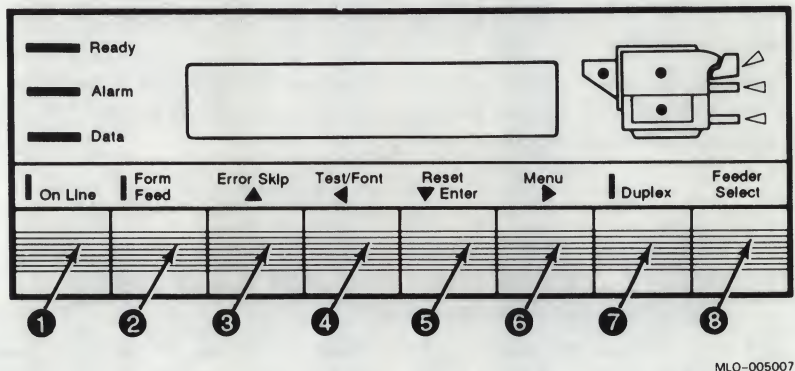
No.	Indicator	Function
①	Ready ¹	The indicator is either on, off, or flashing. If on, the printer is ready. If flashing, the printer is performing a function (for example, the printer is warming up) and you must wait.
②	Alarm ²	Indicates a status condition that is disabling the printer. Alarm conditions require the attention of an operator or service person. The display panel identifies the nature of the alarm indication.
③	Data ¹	Indicates the condition of the buffer memory. The indicator is either on, off, or flashing. If on, there is print data in the buffer. If off, the buffer is empty. If flashing, the buffer is receiving print data from the host system.
NOTE Buffer memory is separated into two buffers. The page buffer memory contains page data. The receive buffer memory contains temporary data.		
④	Message display ¹	<p>A 1-line, 16-character liquid crystal display. During on-line or off-line operation, a 2-digit status code and a summary status message are displayed. When the printer is in the setup menu, a horizontal setup menu is displayed. See Section 4.4 and Table 4-4 for information about the setup menus.</p> <p>With the exception of 00, all 2-digit status numbers flash to attract the attention of the operator. To interpret the display messages, refer to one of the following tables:</p> <ul style="list-style-type: none">• Table 5-1 Operational Status Messages• Table 5-2 Operator Call Messages• Table 5-3 Functional Messages• Table 5-4 Service Messages
⑤	On Line ¹	The indicator is either on, off, or flashing. If on, the printer is on-line. If off, the printer is off-line. It flashes when the printer is switching to the off-line state.
⑥	Form Feed ¹	The indicator is either on, off, or flashing, and works in conjunction with Form Feed . If on, the printer is printing the remaining buffered data. If off, there is no form feed activity. If flashing, the print command is canceled.
⑦	Duplex	If on, the printer is set for duplex printing. Control of duplex print depends on the setting of Duplex and on the configuration of the printer.
⑧	Jam indicators	Indicates the probable location of jammed paper.
⑨	Feed source indicators	Shows the selected feed source. The feed source selection is controlled by the Feeder Select , the FONT/FEED setup menu value, and the configuration of the printer.

¹ Color is green when lit.

² Color is orange when lit.

4.3.2 Control Panel Keys

Figure 4-2 has numbered callouts to identify the location of the control panel keys. Refer to Table 4-2 for a description of each numbered key.



MLO-005007

Figure 4-2 DECaser 2200 Keypad Keys

Table 4-2 Control Panel Keys

No.	Key	Function
①	On Line	Toggles the printer between the on-line and off-line states. In the on-line READY mode, the printer can receive, buffer, and print data from the host system. In the off-line READY mode, the printer can generate and print internal test pattern data. If the printer is set off-line while receiving data or printing, the reception is abruptly terminated but the full page is printed.
②	Form Feed	Activates the form feed process to print remaining buffer data and eject paper from the printer. The key only works when the Data and Ready indicators are on, and when the printer is off-line.
③	Error Skip	Returns the printer to the READY state from an error or alarm condition, and clears the Alarm indicator and the display message.
④	Test/Font	Pressing this key causes the following actions: <ul style="list-style-type: none"> Press once, prints one TEST PRINT A. Press twice, prints one FONT LIST A. Press and hold, continuously prints TEST PRINT B. Press again to stop. Pressing the key multiple times stops the test and displays the TEST STOP message.
⑤	Reset	Pressing Reset clears the data from the DRAM, selects the values stored in RAM as current settings, and if depressed for longer than 10 seconds, activates the Character Dump mode. See Section 4.6.
⑥	Menu	Causes the printer to enter the setup menu and redefines the function of the dual-labeled keys. Section 4.4 gives more information about the setup menus.

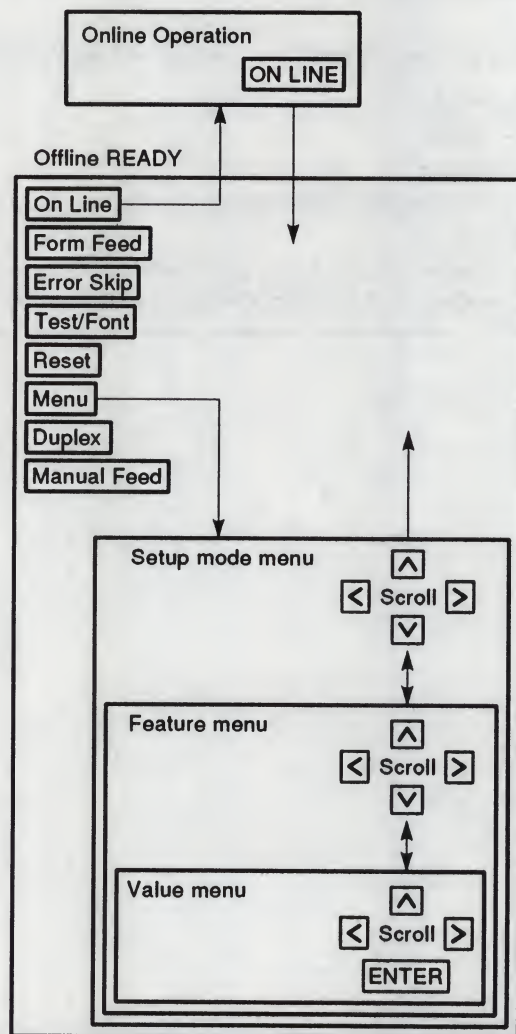
¹See Table 4-3 for a description of this menu scrolling key.

Table 4-2 (Cont.) Control Panel Keys

No.	Key	Function
7	Duplex	<p>Toggles the paper path between single- or two-sided printing but only if the printout selector is set to the facedown print position.</p> <p>You must manually set the printer to simplex or duplex mode; there is no software command to do this.</p>
8	Feeder Select	<p>Toggles the feed source indicators, and shows the following display messages:</p> <ul style="list-style-type: none">• FEEDER = Auto• FEEDER = Lower• FEEDER = Upper• FEEDER = Manual (The indicator and display text appear only if the printer is in simplex test mode.)• FEEDER = Option (The indicator and display text appear only if the optional envelope feeder is installed, and if faceup stacking and simplex printing are selected.)

4.4 SETUP MENU OPERATION

As shown in Figure 4-3, when you press **Menu** you enter the first of a 3-level setup menu. Table 4-4 lists all the setup, feature, and value menus.



MLO-004918

Figure 4-3 DEClaser 2200 Keypad Operation

4.4.1 Setup Menu Format

The horizontal format of the text in the setup menu display is unique. Figure 4-4 shows how the text appears in the window when the printer is in a setup, feature, or value menu. You press the function keys to move through the selection. The selected text is left-justified and indicated by an underline cursor. Ignore any text, separated by a space, on the right of the display.

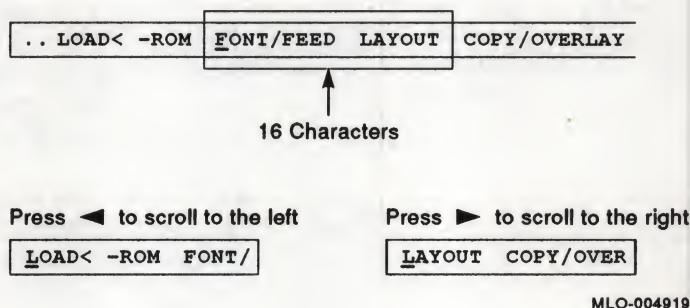


Figure 4-4 Setup Menu Display Text

4.4.2 Moving, Selecting, and Saving Values

Table 4-3 shows the action of the function keys when you scroll through the setup, feature, and value menus.

Table 4-3 Menu Scrolling Keys

Key	Function
↓	Shifts down through the feature and value menus. Down-shifting stops after the value menu.
↑	Shifts up through the value, feature, and setup menus. Up-shifting stops at the offline ready level.
↻ and ↺	Use for scrolling through the selection of the setup, feature, and value menus. The circular scrolling action returns to the starting selection after stepping through each available selection. When a scrolling key is pressed, the text and cursor move. The selected text is left-justified and is indicated by an underline cursor.
Enter	Enters the selected value into the operational memory space and marks the value with an equal (=) sign.

4.4.3 Setup Menu

Table 4-4 describes the setup, feature, and value menus.

Table 4-4 DEClaser 2200 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
FONT/FEED	feeder	=Auto Lower Upper Manual Option	<p>The action of this parameter is exactly the same as pressing Feeder Select, which is explained in Table 4-2.</p> <p>When you select Auto, the printer automatically selects the upper or lower cassette. Both cassettes must be the same size, or a U<->L error occurs. The feed indicator shows which cassette is selected.</p> <p>The Lower or Upper value selects the lower or upper cassette, and the corresponding indicator goes on.</p> <p>When you select Manual, the display prompts you to load a sheet of paper into the manual feeder. When the manual feed sensor detects the paper, the dc control board activates the paper feed clutch and feeds the paper into the registration rollers.</p>
LAYOUT	offsetX offsetY	n.n =0.0	<p>NOTE</p> <p>The Manual display text and control panel indicator appear only if the printer is in simplex test mode.</p> <p>The Option display text and indicator appear only if the optional envelope feeder is installed and faceup stacking is selected.</p> <p>The offset function shifts the printed image on the page in two dimensions.</p> <p>The X dimension shifts from side to side. The start of the beam on the OPC drum is varied.</p> <p>The Y dimension shifts the image from leading to trailing edge.</p> <p>The same value format is used for the offsetX and offsetY parameters. If you select ± 0.0, the image is close to center. If you select ± 10, the shift is maximum. The shift values change in increments of ± 0.5. Each 0.05 increment is equal to 15 dots or 0.05 in (1.27 mm).</p>
LAYOUT (Cont.)	autoNL	ON =OFF	<p>Determines if the line of text is truncated or wrapped at the right-hand margin. When set to ON, the printer automatically inserts a carriage return and line feed character to wrap the text on the next line. When set to OFF, the printer truncates the line at the right-hand margin.</p>
COPY/OVERLAY	copy	nn =00	<p>Determines the number of copies of a page that the printer prints. For example, if set to =05, five copies of each page are printed before the the printer accepts the next page from the host system. The number counts from 01-99 in increments of 1.0.</p>

¹The LOAD<- ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

Table 4-4 (Cont.) DEClaser 2200 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
COMMAND	message	English =Finnish French German Italian Japan Norway Port. Spanish Swedish Danish Dutch	The language text will appear on the display when the printer is in the on-line READY mode. The setup menus always are displayed in English.
INITIAL	macro	yyy 000	Counts up or down from 000-099 in increments of 1.0. The macro feature is used to set the printer environment to match that of the host system. The macro number is a combination of the device identification and character set (Cset) numbers. The sum of the two numbers is entered as the macro number.
INITIAL (Cont.)	paint	Partial =Full Dual	<p>The amount of available memory determines which values are displayed.</p> <ul style="list-style-type: none"> • If the minimum amount of memory is installed (1024 Kbytes), you can only select the Partial value; Full and Dual are not displayed. • If the 1-Mbyte optional memory is installed, you can select Partial or Full; Dual is not displayed. • If 2-Mbyte, 3-Mbyte or more of optional memory is installed, you can select Partial, Full, or Dual. <p>The paint selection allocates the size of the font cache and page areas of available memory. As more and more processed (bitmapped) fonts are cached, more of the available memory is utilized; this leaves less room for bitmapped print data and slows down the printer. More time is required to bitmap a smaller area, which eventually causes the 21 COMPLEX DATA message to be displayed.</p> <ul style="list-style-type: none"> • When you select Partial, a portion of a page is bitmapped, then printed. • When you select Full, one full page is bitmapped, then printed. • When you select Dual, two complete single-page bitmaps are reserved in memory. This enables the printer to simultaneously print page one and bitmap page two.

¹The LOAD← ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

Table 4-4 (Cont.) DEClaser 2200 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
INITIAL (Cont.)	paper	Letter A4	<p>The selected value of the paper feature establishes the default size of the image and of the sheet of paper requested for manual feeding.</p> <p>The printer adjusts the size of the image to fit on the requested size sheet and displays the paper feed message to prompt an operator to load a specific size sheet of paper. See the PF FEED MESSAGES listed in Table 6-2 for details of the paper feed message.</p> <p>The following establishes the size of the printed image and the requested sheet size:</p> <ol style="list-style-type: none"> 1. Escape sequences transmitted from the attached host system select any of the standard sizes or can set a variable size. 2. If no escape sequences are received (for example, when you print the test patterns in off-line READY mode), the cassette size key selects the image and paper size to match the size of the installed and selected cassette. 3. If no escape sequences are received and no cassette is installed, the selected paper value determines the image size and the paper feed size.
INTERFACE	i/f	=RS232C CENTRO	<p>If you select CENTRO, the parallel 8-bit Centronics™ port is activated. There are no features or values associated with the CENTRO selection. All speeds and signals are fixed.</p> <p>If you select RS232C, the serial RS-232-C compatible port is activated.</p> <p>The following parameters are always printed on the TEST PRINT A sheet, but are displayed only when RS232C is selected.</p> <p>baud</p> <p>rsmode</p> <p>dtr</p> <p>xon/xoff</p> <p>etx/ack</p>

¹The LOAD<- ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

Table 4-4 (Cont.) DEClaser 2200 Setup, Feature, and Value Menus

Setup Level	Feature Level	Value Level ¹	Comment
INTERFACE (Cont.)	baud ²	19200 9600 4800 =2400 1200 600 300	Establishes the baud rate of the serial port. The baud rate of the printer must match the baud rate of the host system.
INTERFACE (Cont.)	rsmode ²	8S 8SS =7OS 7ES 7OSS 7ESS 8OS 8ES	The values define the characteristics of the RS-232-C serial data byte and must match the host system. The following example shows the format: 8OS where: 8 is the number of data bits. O means odd parity, E means even parity, and no O or E means no parity checking. S means one stop bit is used.
INTERFACE (Cont.)	dtr ²	READY-H =Fix-H	Sets the state of the serial connector DTR signal to be fixed or conditional to the on-line READY state of the printer.
INTERFACE (Cont.)	xon/xoff ²	=ON OFF	If you select ON, XON/XOFF flow control is enabled.
INTERFACE (Cont.)	etx/ack ²	=ON OFF	If you select ON, ETX/ACK flow control is enabled.
SAVE->RAM	ok	-	Writes the selected value of COPY/OVERLAY and autoNL into RAM.
SAVE->NVRAM	ok	-	Writes all the selected values into NVRAM. The contents of NVRAM are retained through a power-down cycle.
LOAD<-ROM	ok	-	Loads all factory values from ROM to selected values.

¹The LOAD<- ROM factory values are in bold.

The equal sign (=) indicates the selected value. When you scroll into a value level, the selected value is displayed first.

²This value appears only if you select RS232C.

4.5 TEST PATTERNS

Press **Test/Font** briefly to print one copy of TEST PRINT A. Figure 4-5 is a copy of TEST PRINT A. The section labeled TEST PRINT is a status configuration listing. The section labeled Current Settings shows the selected value of every setup feature. See Table 4-4 for more information.

4.5.1 TEST PRINT A

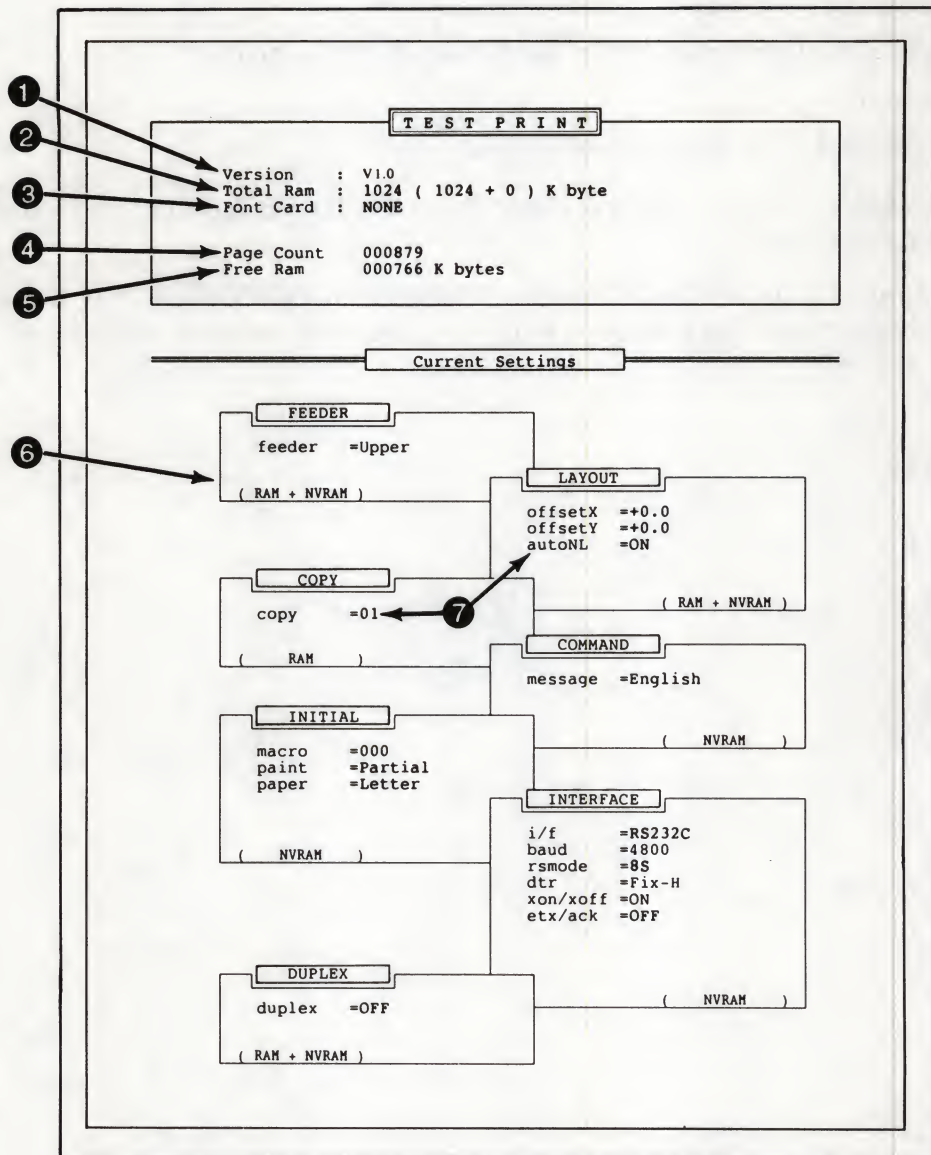
Press **Test/Font** briefly to print one copy of TEST PRINT A. Figure 4-5 is a copy of TEST PRINT A. The section labeled TEST PRINT is a status configuration listing. The section labeled Current Settings shows the selected value of every setup feature. See Table 4-4 for more information.

The numbered callouts in Figure 4-5 are described below.

- | | | |
|---|------------------|---|
| ① | Version | The version line lists the current revision level of the printer firmware. |
| ② | Total Ram | Lists the amount of random-access memory (RAM) available in the printer. From the example shown in Figure 4-5, you can determine that there are 1024 Kbytes of RAM. This is the minimum amount of memory and represents the internal stock memory. This number increases by 1-, 2-, or 3-Mbyte increments when you add a memory expansion option. |
| ③ | Font Card | Shows the number of installed font cartridges. |
| ④ | Page Count | The page count number is incremented by one each time the printer prints a page. |
| ⑤ | Free Ram | Indicates the amount of unused or available dynamic RAM (DRAM) space. |
| ⑥ | Current Settings | <p>The current settings block text shows you the selected value for each feature in every setup menu.</p> <p>The area of memory in which the values can be stored are also shown. For example, (RAM + NVRAM) means the current setting can be stored in RAM or NVRAM.</p> |

NOTE

The RAM text in some memory blocks is misleading. The only values you can save to RAM are ⑦ copy and autoNL.



MLO-005018

Figure 4-5 TEST PRINT A

4.5.2 Font List

The Font List (Figure 4-6) is a sample listing of all character sets available to the printer. The list includes the following:

- Internal fonts that are installed in the firmware of the printer
- Cartridge fonts
- Down-line loaded fonts from a host system

Fonts are selected by escape sequences sent from the host computer. You cannot select a font from the control panel.

To print the Font List, press **Test/Font** twice. The text 06 FONT LIST A is displayed while the Font List is printing. The complete Font List is usually several pages long.

MLO-004853

Figure 4-6 Font List

4.5.3 TEST PRINT B

The TEST PRINT B pattern shown in Figure 4-7 consists of an incrementing alphanumeric test pattern. The start of each line is offset by one character, and a full page of the pattern shows a spiraling effect. The TEST PRINT B pattern is a useful troubleshooting tool for the following reasons:

- The pattern of sequentially changing characters is printed across the entire page and is readable. You can easily see any missing characters, changes in image density, and most image defects.
- You can target specific areas of the paper path by selecting duplex, faceup, or facedown stacking.
- The TEST PRINT B pattern runs continuously, which exercises the printer and enables you to thoroughly test the printer in off-line operation.
- The continuous operation can be used as a confidence test to assure any personnel working on high-level printer problems that the printer is operating correctly.

To print TEST PRINT B, press and hold **Test/Font** for about five seconds until the 01 TEST PRINT B message is displayed. The printer then continuously prints the TEST PRINT B pattern until you press **Test/Font** or **On Line**, or until the paper supply runs out.

MLO-004852

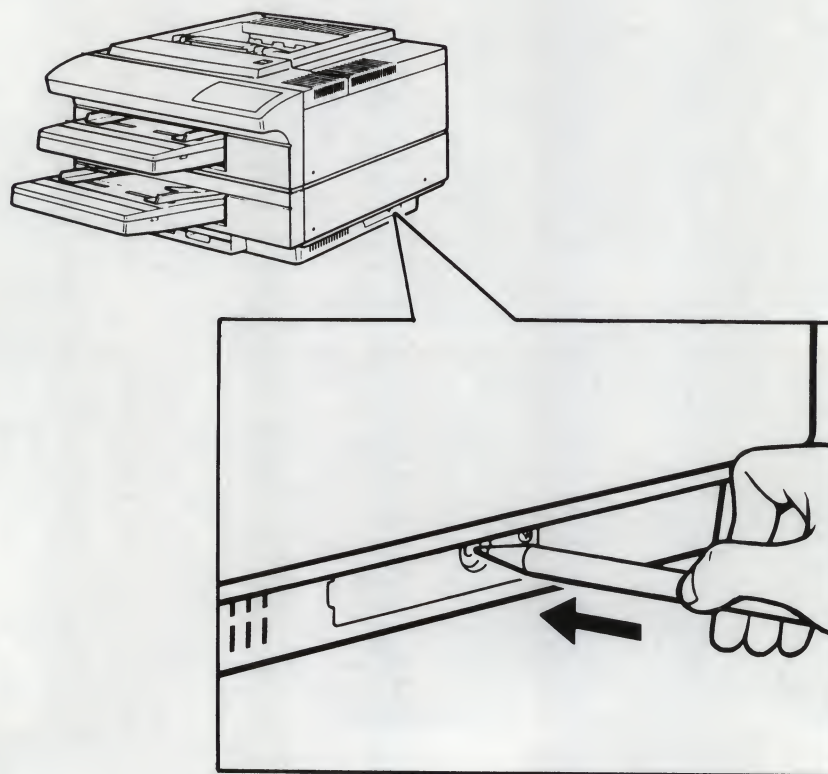
DECLaser 2200 CONTROL PANEL OPERATION 4-17

4.5.4 Engine Test Print

Figure 4-8 shows the location of the TEST PRINT button.

Use a pencil or other suitable tool to press the TEST PRINT button. The printer responds as follows:

1. If the printer is on-line and printing, the current job finishes printing.
2. The On Line indicator goes off.
3. The orange Alarm indicator lights.
4. The text 15 ENGINE TEST is displayed.
5. One simplex copy of the test pattern is printed (Figure 4-9).
6. After printing, the printer returns to the off-line READY mode.



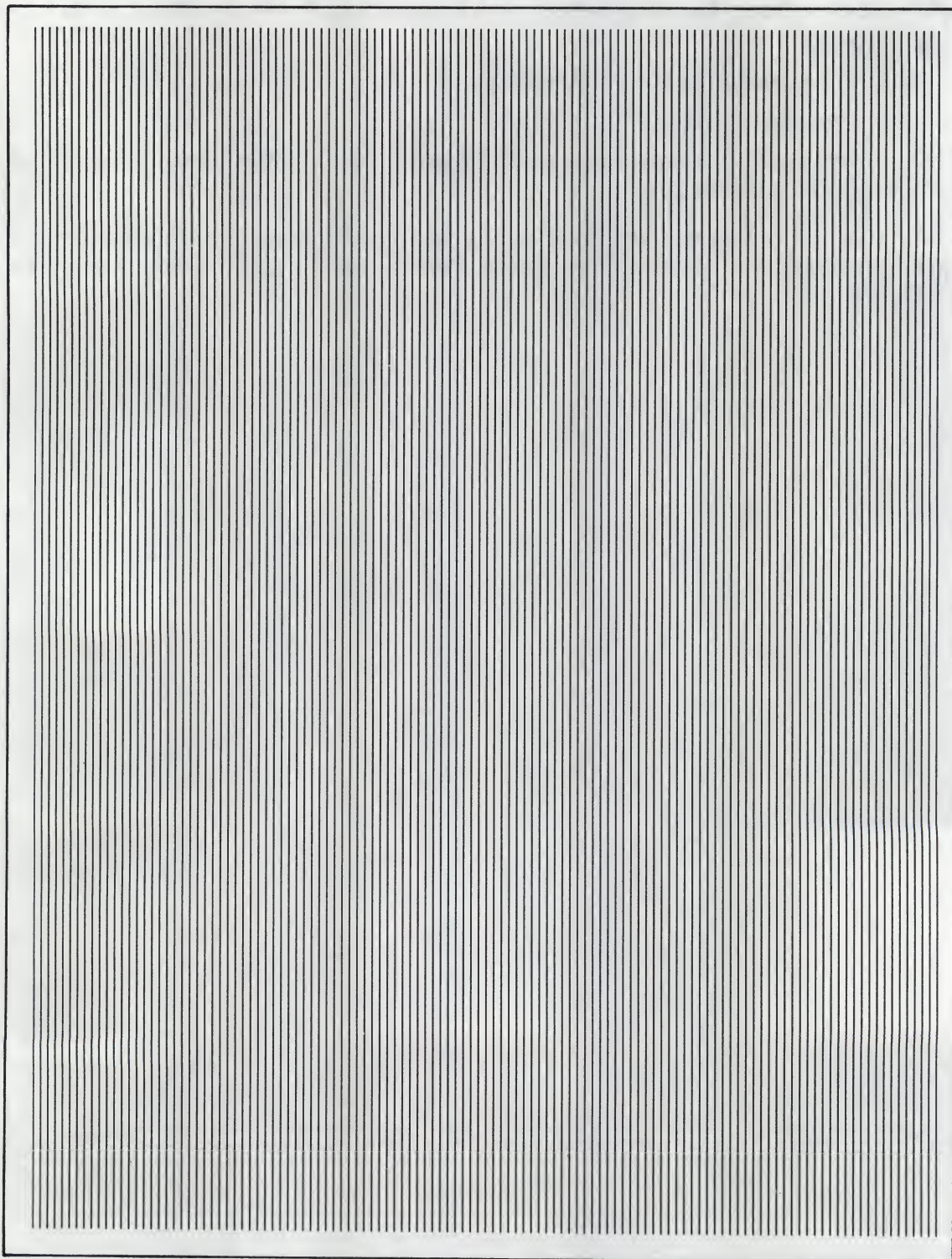
MLO-004894

Figure 4-8 Pressing the TEST PRINT Button

Figure 4-9 is an example of the Engine Test Print. The control panel test patterns are generally more useful for troubleshooting. The Engine Test Print is commonly used for the following purposes:

- To verify the condition of the print engine.
- To check toner dispersion and line weight.
- If the control panel is nonoperational, the Engine Test Print is a good indicator of the condition of the print engine.

The white area of the Engine Test Print should be free of toner or smudges, and the lines must print cleanly across the entire page with no faded areas. If the print quality is poor, refer to Unit 6.



MLO-004525

Figure 4-9 Engine Test Print

4.6 CHARACTER DUMP MODE

The Character Dump mode is used to print out raw (unprocessed) data or commands sent from the host computer. When the Dump mode is activated, the printer prints all the normally invisible control characters, such as carriage returns and line feeds.

Use the following procedure to activate the Character Dump mode:

1. If the printer is on-line, press **On Line** to place the printer off-line.
2. Press and hold **Reset** for about 10–20 seconds, then release.
3. While you are holding the key, the text 03 RESET is displayed.
4. Shortly after you release the key, the text 00 READY DUMP is displayed and the printer is in the Character Dump mode.
5. Press **On Line** again to place the printer on-line.

The printer is now in the Character Dump and on-line READY modes, and will accept data or commands from the host system.

To exit the Dump mode, press **On Line** to set the printer off-line, then press **Reset**.

5.3 TROUBLESHOOTING

This unit describes the DEClaser 2100 troubleshooting fault isolation procedure (FIP). The FIP is a multipage step-by-step procedure used to verify and isolate malfunctions. The FIP allows you to arrive at the correct repair procedure. The **FIP Notes** inform you as to where you are in the overall FIP.

The FIP consists of the following major sections.

1. Section 5.5 is for troubleshooting the vague symptoms caused by a malfunctioning ac line power, dc power supply, or control panel.
2. Section 5.6 is for troubleshooting control panel alarms and display text, for example, interlocks, toner low, and paper outs.
3. Section 5.7 is used to troubleshooting feed faults and paper jams.
4. Section 5.8 is used to troubleshoot image defects. Before starting this section the printer must be able to feed and stack paper.

After you repair the DEClaser 2100 printer, perform the TCC procedure in Unit 9. If the page count on TEST SHEET A shows that 100,000 pages have printed, perform the 100K preventative maintenance procedure.

Make sure you fill out the DEClaser 2100 maintenance log before leaving the customer's site.

5.4 GETTING STARTED

Figure 5-1 is the start of the FIP. The FIP assumes that you have just arrived at the customer's site.

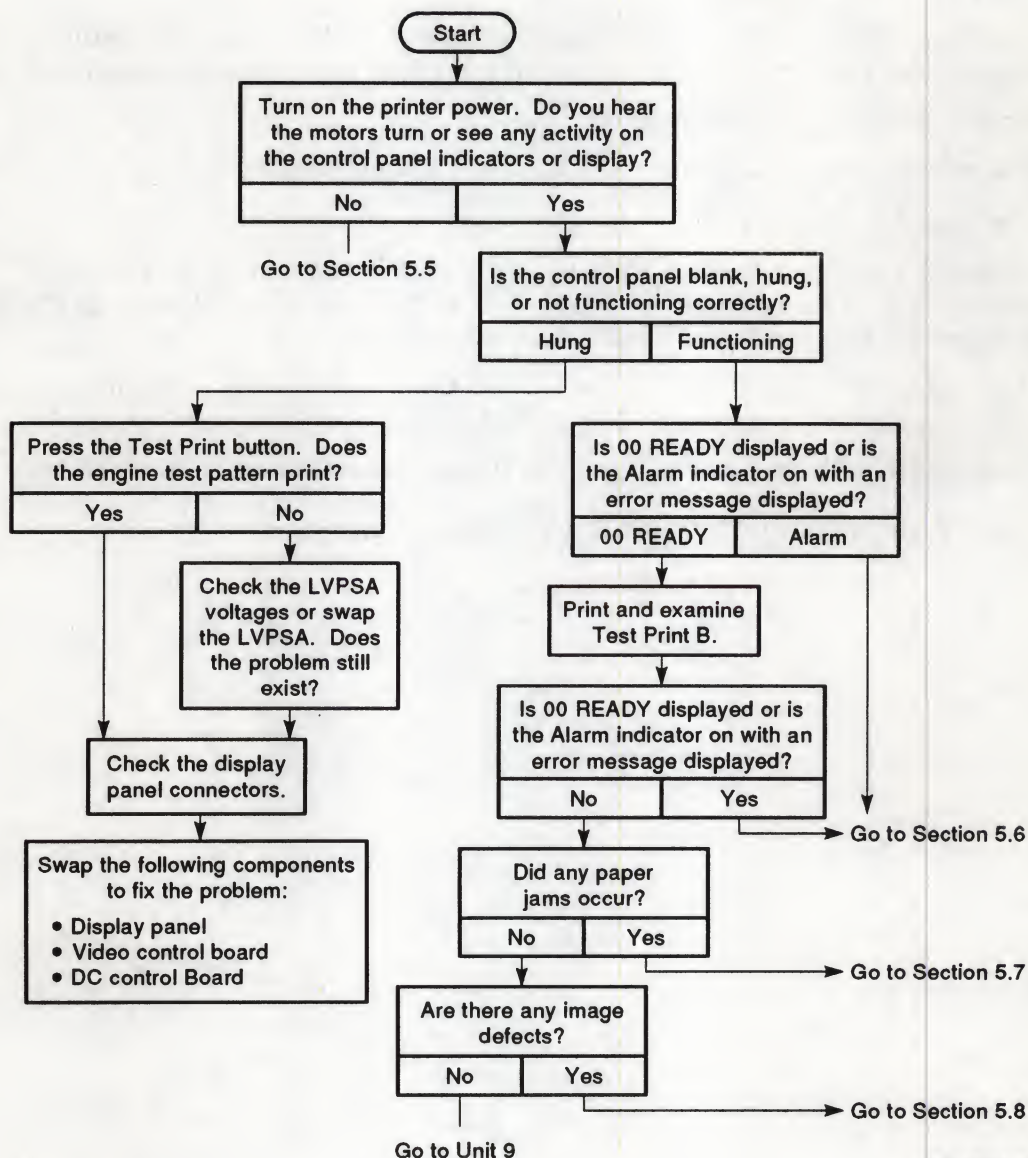


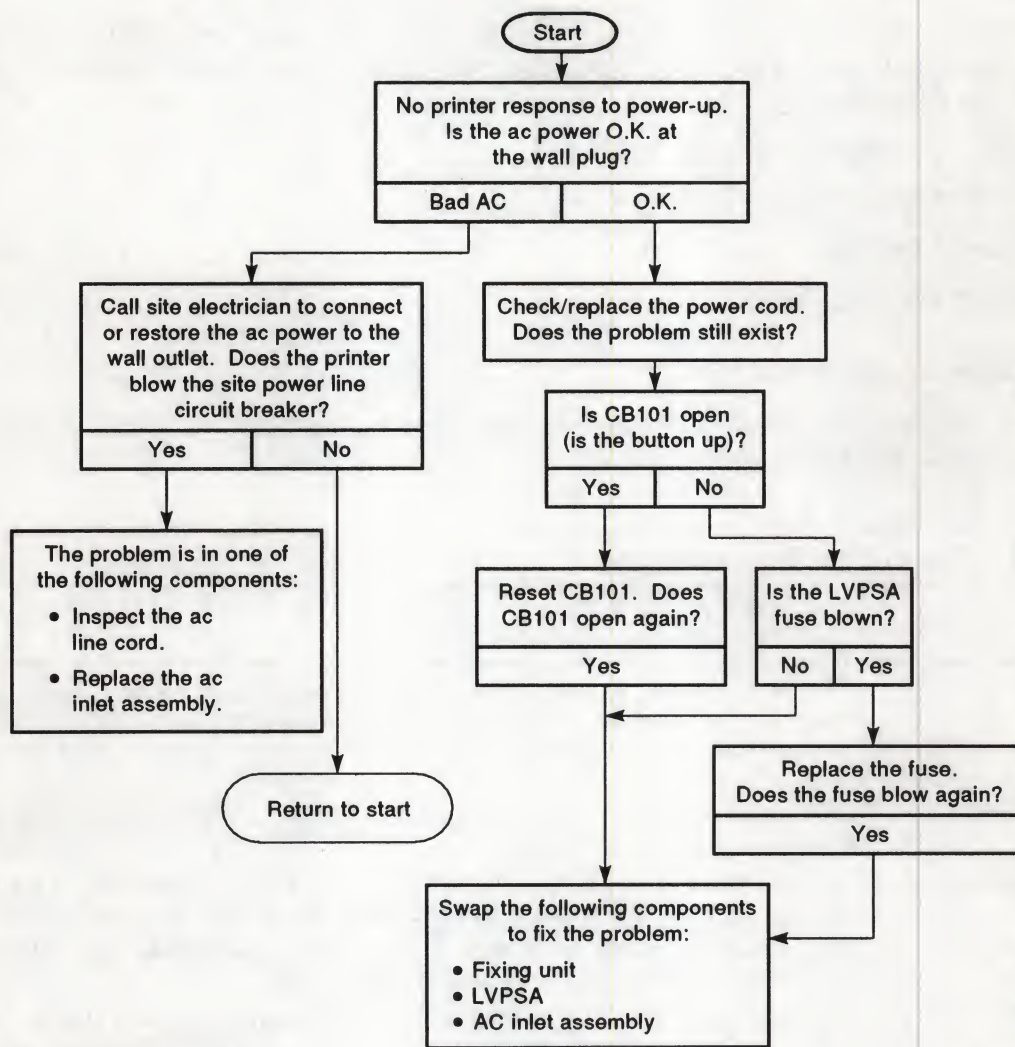
Figure 5-1 Start FIP

5.5 TROUBLESHOOTING POWER-UP FAULTS

You see and hear the following when you power up the DEClaser 2100 printer, assuming that both cassettes and an EP-S cartridge are installed, and no error condition is detected.

1. All control panel indicators come on.
2. Solid blocks appear momentarily on the control panel display.
If optional memory is installed, an active display pattern occurs.
3. The scanner and main motors start up with a whirring sound. If any paper is left in the fixing unit, it moves into the fixing unit exit sensor to produce a 13 PAPER JAM error message, and the fixing heater does not start.
4. The text 02 WARMING UP is displayed and the Ready indicator flashes. It takes less than two minutes to achieve the 160°C (320°F) fixing unit standby temperature.
5. The text 00 READY is displayed and the Ready indicator comes on steadily.

See Figure 5-2 for the power-up fault troubleshooting flowchart.



MKV-X4017-90

Figure 5-2 Power-Up Fault

5.6 TROUBLESHOOTING CONTROL PANEL FAULTS

The list below points to the tables that interpret the control panel display text and give information about troubleshooting. A fault condition exists if messages are displayed frequently or continuously.

- Operational status messages, Table 5-1
- Operator call messages, Table 5-2
- Functional messages, Table 5-3
- Service messages, Table 5-4

5.6.1 Status Message and Faults

Table 5-1 lists all the messages that are displayed on the control panel during normal operation of the DEClaser 2100 printer.

Table 5-1 Operational Status Messages

Number Message	Description and Action
00 READY	The printer is ready to print. If the On Line indicator is on, print files can be sent from the host. If the On Line indicator is off, the printer is in the off-line READY mode. In the normal mode you can print test sheets, enter the setup menus, or perform any off-line task.
01 TEST PRINT B	The printer is generating and printing TEST PRINT B. See Section 4.5.3 for more information about TEST PRINT B.
02 WARMING UP	The printer is waiting for the fixing unit to reach operating temperature. If the fixing unit fails to reach the correct operating temperature, the 50 SERVICE message is displayed.
03 RESET	This message is displayed for about four seconds to confirm that the reset function is completed. Pressing Reset initiates the reset function.
04 TEST STOP	This message is displayed to show that the generation and printing of a test pattern is stopping. The message is displayed while the remaining paper is printed and ejected.
05 TEST PRINT A	This message is displayed during the generation and printing of TEST PRINT A.
06 FONT LIST	This message is displayed during the generation and printing of the FONT LIST.
06-10	Not used.

5.6.2 Operator Call Messages and Faults

When an operator call condition occurs, the printer goes off-line and an operator call message is displayed. The message disappears automatically as soon as the condition is corrected. A fault condition exists when the message cannot be cleared or is displayed for no apparent reason.

Table 5-2 lists all operator call messages, explains the message, and provides troubleshooting information if the message faults.

Table 5-2 Operator Call Messages

Number Message	Description and Action
11 PAPER OUT	<p>The cassette is empty or no cassette is installed. The paper-out sensor and linkage detect an empty cassette and the cassette size-sensing switches detect a missing cassette.</p> <p>Troubleshooting</p> <p>Use the following procedure to fix a paper out fault:</p> <ol style="list-style-type: none">1. Inspect and swap the cassette.2. Inspect and repair the linkage of the paper-out sensor.3. Swap the solenoid and sensor board.4. Swap the dc control board.
12 PRINTER OPEN	<p>This message is displayed when the top cover of the printer is open. When the top cover is closed, the top cover switch lever presses the interlock switches. One interlock switch interrupts the main motor drive current; the other switch signals the dc control board.</p> <p>Troubleshooting</p> <p>Do the following if closing the cover does not automatically clear the error:</p> <ol style="list-style-type: none">1. Inspect the top cover switch lever for any damage. Make sure you hear both switches actuate as the top cover is closed. Do not confuse the sound of the drum sensitivity switches with that of the interlock switches.2. Inspect and manually actuate the interlock switch. Fix or replace the LVPSA if you find the switches are damaged or not operable.3. Replace the LVPSA.4. Replace the dc control board.
13 PAPER JAM	<p>This message is displayed when paper is jammed in the printer paper path and causes the dc control board to inhibit printer operation.</p> <p>If the message appears at power-up, the jammed paper is actuating the exit sensor in the fixing unit.</p> <p>The jam display message clears when you open and close the top cover, or when you press Error Skip.</p> <p>The printer may require repair if you cannot clear the error message and display, or if jams occur shortly after the printer resumes feeding.</p> <p>Troubleshooting</p> <p>To begin troubleshooting a jam, turn to the start FIP at Figure 5-3.</p>

Table 5-2 (Cont.) Operator Call Messages

Number Message	Description and Action
14 NO EP-CART	<p data-bbox="483 327 1386 380">This message is displayed when the top cover is closed and both drum sensitivity switches remain off.</p> <p data-bbox="483 390 1430 506">When the top cover is closed, the sensitivity tabs on the EP-S cartridge actuate one or both of the drum sensitivity switches that signal the dc control board. The dc control board responds to the signal by setting the laser beam intensity and allowing the initialization process to proceed.</p> <p data-bbox="483 527 711 558">Troubleshooting</p> <p data-bbox="483 579 1295 600">Do the following if the error cannot be cleared or if it appears intermittently:</p> <ol data-bbox="483 621 1430 894" style="list-style-type: none">1. Inspect the sensitivity tabs on the EP-S cartridge. Either one or two tabs must be installed. If there are no tabs, replace the EP-S cartridge.2. Inspect the levers that actuate the drum sensitivity switches on the sensor and solenoid board. Press the levers with your finger, listen for the clicking of both switches, and make sure the levers move freely. Make sure the switches actuate when the top cover is closed. Replace the sensor and solenoid board if the sensitivity switches are defective.3. Swap the solenoid and sensor board.4. Replace the dc control board.
15 ENGINE TEST	<p data-bbox="483 915 1438 999">This message is displayed during the generation and printing of the print engine internal test pattern, which is initiated when you press the TEST PRINT button on the dc control board.</p>
16 TONER LOW	<p data-bbox="483 1010 1438 1062">This message is displayed if the toner supply in the EP-S cartridge is exhausted or if the toner is compacted into cakes and unable to flow.</p> <p data-bbox="483 1083 711 1115">Troubleshooting</p> <p data-bbox="483 1136 1214 1157">Do the following if the message is intermittent or cannot be cleared:</p> <ol data-bbox="483 1178 1438 1499" style="list-style-type: none">1. Remove and agitate the EP-S cartridge to loosen up the toner. Replace the EP-S cartridge if the printer prints for a while, then the message is redisplayed.2. Inspect the HVPSA and EP-S connectors for dirt, pitting, damage, or contamination. If any damage is found, replace the FRU. Do not try to scrape, bend, or repair the contacts. <p data-bbox="532 1346 1414 1398">Remove any dust or paper chips with a dry brush. Do not use liquid, aerosol, or any other type of contact cleaner on the high-voltage connectors.</p>3. Swap the EP-S cartridge.4. Swap the HVPSA.5. Replace the dc control board.

Table 5-2 (Cont.) Operator Call Messages

Number Message	Description and Action
PC LOAD A4 PC LOAD LETTER PC LOAD LEGAL PC LOAD EXEC. PC LOAD PAPER <i>nn</i>	<p>A PC LOAD request signals the operator to remove the selected cassette, install the requested size cassette, and press Error Skip, then On Line to resume the printing operation.</p> <p>The PC LOAD PAPER <i>nn</i> message requests the operator to load the envelope cassette. The <i>nn</i> is the paper size code number that corresponds to a specific type of envelope. The <i>nn</i> number range is 80-99.</p>

Troubleshooting

Do the following if the message is displayed when the correct size cassette is installed:

1. Inspect the cassette key and if it is damaged, replace the cassette.
2. Inspect, repair, or replace any binding or sticking levers that actuate the size-sensing switches.
The size-sensing switches are located on the dc control board. Press the sensing levers with your finger. Feel and listen for the free movement and a distinct click action.
3. Swap the dc control board.

PF FEED A4
PF FEED LETTER
PF FEED LEGAL
PF FEED EXEC.
PF FEED PAPER *nn*

The PF FEED message requests the operator to insert a sheet of paper into the manual paper feeder.

When the manual feed sensor is actuated, the printer delays momentarily to allow the operator to fully insert the sheet, and then it feeds and prints the sheet.

The PF FEED PAPER *nn* message requests the operator to manually load and feed a nonstandard size paper. The *nn* number range is 80-99.

Troubleshooting

Perform the following procedure to test, find, and fix a manual feed fault.

1. Press **Manual Feed** until the FEEDER = MANUAL message is displayed.
2. Press **Test/Font** to print a test pattern. The PF LOAD message is displayed. The requested size paper to load is determined by the size of the installed cassette or by the value selected for the paper feature on the initial setup menu. See Table 4-4 for more information about the setup menu.
3. Insert a sheet of paper into the manual feeder. A fault exists if the message does not change and the pickup roller does not turn.
4. Do the following to fix a PF FEED fault:
 - a. Swap the solenoid and sensor board.
 - b. Swap the dc control board.

NOTE

If the top sheet of the cassette paper feeds, instead of the manual feed sheet, you are not pushing the paper far enough or fast enough into the manual feeder. If the sheet feeds but jams, go to Section 5.7.1 to fix the paper feeding or jamming problem.

OC text
(16 characters)

Operator action request message. Press **Error Skip**, then **On Line** to continue printing.

5.6.3 Functional Messages and Faults

Table 5–3 lists all status messages, explains the message, and provides troubleshooting information if the message faults.

Table 5–3 Functional Messages

Number Message	Description and Action
FE FONT REMOVAL	<p>A font cartridge was removed or inserted while the printer was powered on. To clear this error, power the printer off, then on. Always insert or remove a font cartridge while the printer is powered off.</p> <p>Swap the video control board if you cannot clear the error.</p>
FF FONT FULL	<p>There is insufficient memory space for loading of an additional font or there are too many down-line loaded fonts. Memory can be cleared by a software command from the host or by pressing Reset.</p>
20 PAGE FULL	<p>The host system is overflowing the page (input) buffer memory.</p> <p>Press Error Skip, then On Line to print the overflow data on the next page.</p> <p>To avoid this error, delete unused character sets and use the full paint mode. If this error occurs frequently, the customer can install optional memory to increase available RAM.</p>
21 COMPLEX DATA	<p>The host system is loading the page buffer faster than the printer can print. Press Error Skip, then On Line to continue printing on the next page.</p> <p>Set the paint = full value from the initial setup menu.</p>
22 LINE ERROR	<p>The host is sending data when the printer is in the busy state. This causes an overflow of the receive buffer memory. Press Error Skip, then On Line to continue. The overflow data does not print.</p> <p>This error can occur when the customer powers up the printer before powering up the attached host system.</p> <p>If this error occurs frequently, check the data cable between the host and printer and make sure the printer interface settings match the settings of the host.</p> <p>If you cannot clear this error, swap the video control board.</p>
23 MEMORY FULL	<p>An overflow occurred while the host was down-line loading user defined character patterns to the printer.</p> <p>Press Error Skip, then On Line to continue receiving data and to ignore the data that caused the error.</p> <p>If this error occurs frequently, the customer can increase memory by installing an optional RAM expansion.</p>
24 FULL PAINT REJ	<p>Insufficient memory space to use full paint mode. The customer can increase memory space by installing an optional RAM expansion.</p> <p>Press Error Skip, then On Line to continue printing in partial paint mode.</p>
25 VECTOR REJ	<p>Vector graphics commands from the host system cannot be used because the printer is not in full paint mode. You have two possible actions:</p> <ul style="list-style-type: none">• Press Error Skip, then On Line to continue printing. Subsequent vector graphics commands are treated as text and printed.• Stop sending data from the host, select the paint = full value from the initial setup menu, then send the data from the host again.

NOTE

Vector graphics commands cause the printer to fill in closed areas of circles, ellipses, and other shapes.

Table 5-3 (Cont.) Functional Messages

Number Message	Description and Action
26 MEMORY FULL	<p>The work memory used by the video control board has overflowed and the current operation cannot be done. If this error occurs too frequently, the customer can increase the available memory by installing an optional RAM expansion board.</p> <p>Press Error Skip, then On Line to continue receiving data from the host. The offending operation is ignored.</p>
27-39	Not used.
40 LINE ERROR	<p>The printer detects errors in the serial data received from the host. The printer stops printing before the offending page and displays the error message.</p> <p>Do the following:</p> <ol style="list-style-type: none">1. Press Error Skip, then On Line to continue receiving data.2. Inspect the data cable and connectors between the host and printer and make sure the printer interface settings match the settings of the host.
41 PRINT CHECK	<p>A soft error occurred that can cause a print defect. Remove and discard the top sheet from the stack. Press Error Skip to continue printing and to reprint the discarded sheet. If the error occurs frequently or cannot be cleared, do the following:</p> <ol style="list-style-type: none">1. Check the connection between the scanner assembly and dc control board.2. Swap the scanner assembly.3. Swap the dc control board.
42 ERROR	Expansion interface board error.
43 ERROR	Expansion interface board error.

5.6.4 Service Messages

Table 5-4 lists all service error messages, explains the message, and provides troubleshooting information if the message faults.

Table 5-4 Service Messages

Number Message	Description and Action
50 SERVICE	<p>This fixing unit fault message is caused by a malfunction of the regulation of the fixing unit temperature. If the fixing unit heater is inoperative when the power is turned on, the 02 WARMING UP message is displayed for two minutes before the 50 SERVICE message is displayed.</p> <p>Troubleshooting</p> <p>Use the following procedure to correct the fixing unit temperature problem:</p> <ol style="list-style-type: none">1. If the error occurs at power-up, the malfunction might be corrected but you may not have allowed a full 10 minutes of power off time for the error to clear.2. Inspect or swap the fixing unit. Make sure the fixing unit connectors are undamaged and the pins align correctly with the sockets. If you find any damage, replace the fixing unit.3. Swap the ac inlet assembly.4. Swap the dc control board.
51 SERVICE	<p>The dc control board fails to detect the beam detect (BD) signal from the scanning unit. Inspect the actuator tab on the EP-S cartridge and the shutter lever mechanism on the scanner assembly for signs of damage. Make sure the tab actuates the shutter lever on the scanner assembly when the top cover closes.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. EP-S cartridge2. Scanner assembly3. DC control board
52 SERVICE	<p>The scanner motor is not up to speed. Check the scanner assembly electrical connectors for good connections. Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Scanner assembly2. DC control board <p>53-59 SERVICE not used.</p>
60 SERVICE	<p>This is a direct memory access (DMA) error that occurs after you power up the printer. Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board
61 SERVICE	<p>A checksum error was detected in the program and font ROMs. Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board <p>62 SERVICE not used.</p>

Table 5-4 (Cont.) Service Messages

Number Message	Description and Action
63 SERVICE	RAM errors were detected after power-up. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board 64-67 SERVICE not used.
68 SERVICE	NVRAM errors were detected after printer power-up. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
69 SERVICE	A timeout error occurred because no status information was returned from the expansion interface. To clear this error, you must power the printer off, then on. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
70 SERVICE	Errors were detected in the expansion board RAM. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
71 SERVICE	Errors were detected in the S-CPU during power-up. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
72 SERVICE	A communication error occurred between the S-CPU and M-CPU. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
73 SERVICE	An error was detected in the S-CPU during operation. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
74 SERVICE	A power-up error is detected in the M-CPU. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board

Table 5-4 (Cont.) Service Messages

Number Message	Description and Action
75 SERVICE	<p>A signaling or communication problem has occurred between the dc and video control boards. The \overline{VSREQ} signal is asserted while the \overline{PRINT} signal is not.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board <p>76-79 SERVICE not used.</p>
80 SERVICE	<p>No STATUS signal after the COMMAND signal.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board
81 SERVICE	<p>A COMMAND or STATUS signal parity error is detected.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board
82 SERVICE	<p>Bit 3 of the printer status bit is a 1.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board
83 SERVICE	<p>Bit 7 of the printer status bit is a 1.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board
84 SERVICE	<p>This is a timeout error. The video control board has failed to transmit one page of video to the dc control board.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board
85 SERVICE	<p>This is a timeout error. The \overline{VSREQ} signal was not asserted after the \overline{PRINT} signal.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board

Table 5-4 (Cont.) Service Messages

Number Message	Description and Action
86 SERVICE	An illegal command or status is detected. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
87 SERVICE	The video control board is connected with a foreign engine. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board

5.7 TROUBLESHOOTING PAPER JAM AND FEED FAULTS

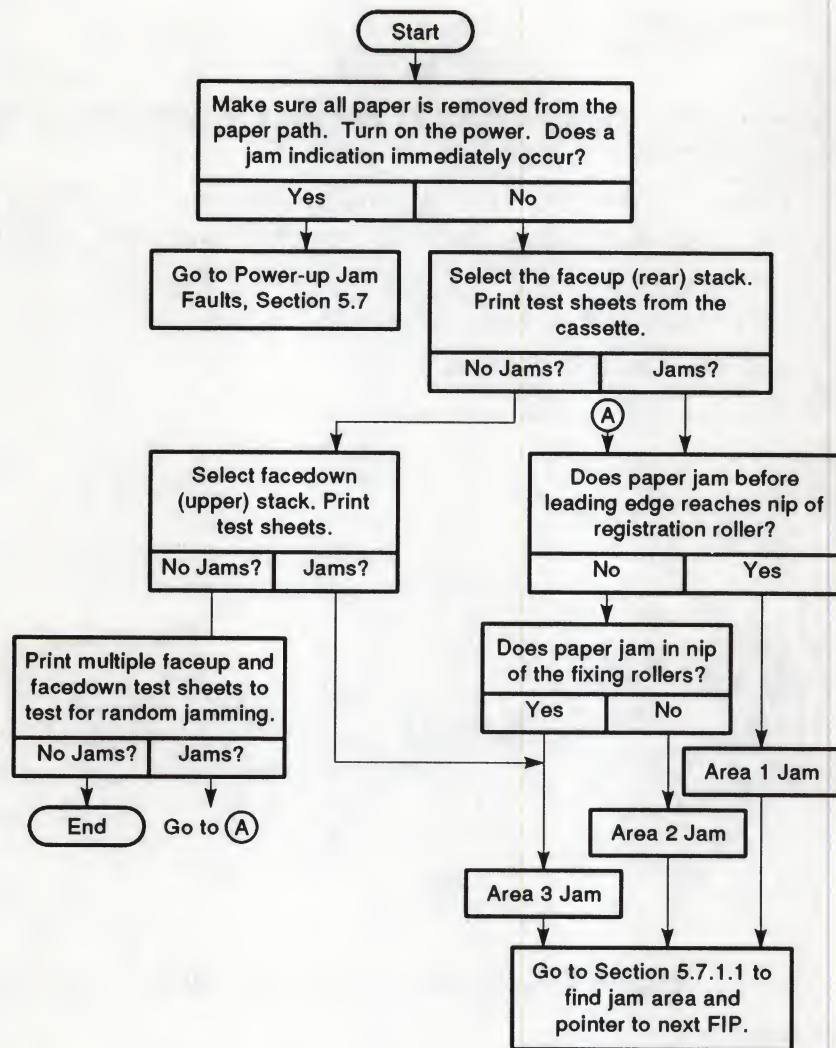
This section is the FIP for correcting paper jam problems in the DEClaser 2100 printer. Refer to Unit 1 for information about the rollers, sensor, and the shape of the paper path.

5.7.1 Jam Troubleshooting Start FIP

FIP NOTES

This section of the FIP is used to repair a printer that jams or displays jam symptoms. Start your troubleshooting at Figure 5-3, which will direct you to one of the following specific subsections:

- Section 5.7.1 for jam indications that occur at power-up or occur spontaneously. These indications are sometimes called phantom jams because there is no sheet of paper in the paper path.
- Sections 5.7.2-5.7.5 for jams that occur in areas 1, 2, or 3 that are inside the printer. Figure 5-4 shows the location and boundaries of the three areas.



MKV-X4014-90

Figure 5-3 Jam Start FIP

5.7.1.1 The Three Paper Path Jam Areas

FIP NOTES

This is the second step of the jam FIP. The FIP start is Section 5.7.1. The start jam FIP (Figure 5-3) precedes this step.

The start jam FIP (Figure 5-3) isolated the jam to a specific area. Use Figure 5-4 to visually locate the areas. Once you determine in which area the jams occur, turn to the indicated section.

- ❶ Area 1, the pickup roller and cassette, Section 5.7.3
- ❷ Area 2, the registration rollers, Section 5.7.4
- ❸ Area 3, the fixing and output roller, Section 5.7.5

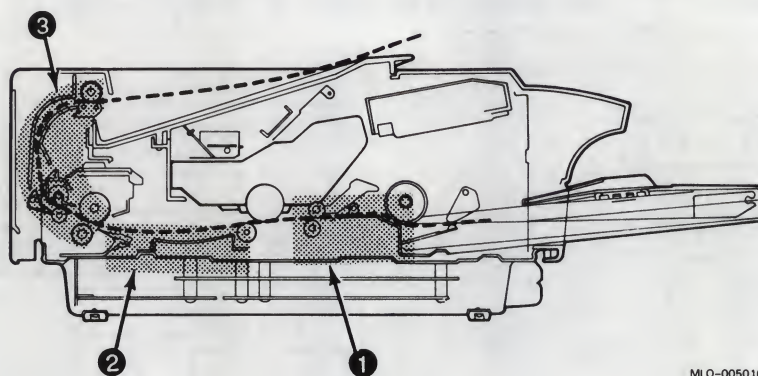


Figure 5-4 DEClaser 2100 Jam Areas

About the Jam Areas

Figure 5-4 shows how the paper path is divided into the three areas. Always troubleshoot the lowest numbered areas first, for example, area 1 before area 3, and so on.

Areas 1, 2, and 3 are named for the rollers that move and control the sheet as it passes through the area. The exit sensor on the fixing unit is the basic cause of all area 1, 2, and 3 jams.

5.7.2 Power-Up Jams

FIP NOTES

Section 5.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

The following sequence of events defines the power-up jams. Turn to Table 5-5 to fix the power-up jam fault.

1. You examine the paper path and find no paper.
2. You turn the printer power on.
3. The printer goes through the normal period of self-test.
4. The printer beeps and the orange Alarm indicator lights.
5. The 13 PAPER JAM message is displayed along with one or more jam indicators.
6. The jam condition prevents the fixing unit from heating up.

Table 5-5 Power-Up Jams

Jam Indicator	Description and Action
Power-up jam	<p>All print engine jams are caused by the fixing unit exit sensor. The exit sensor is mounted on the fixing unit and is actuated by the flag linkage. When there is no paper in the fixing unit, gravity pulls down the flag linkage and blocks the sensor. Perform the following steps to fix a power-up jam:</p> <ol style="list-style-type: none">1. Remove the fixing unit and inspect the exit sensor and the sensor linkage. Clean any dust and pieces of paper from the fixing unit and sensor assembly. Make sure the linkage moves freely. If you find any damage, install a new fixing unit.2. Replace the fixing unit, making sure the 6-pin connectors on the fixing unit and engine baseplate mate correctly. Power on the printer to see if the engine jam is fixed.3. Swap the fixing unit.4. Swap the dc control board.

5.7.3 Area 1 Jams

FIP NOTES

Section 5.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

An area 1 jam occurs when the pickup roller fails to pick up a single sheet of paper and then to push the leading edge into the nip of the registration rollers. If the registration rollers grasp the sheet, it is an area 2 jam. The dc control board controls the timing of the pickup solenoid, that when energized, allows the pickup clutch to turn the pickup roller shafts.

Area 1 Timing and Events

Make sure the cassette is fully inserted and the stack lift lever lifts the paper up into the pickup rollers.

When you press **Test/Font**, the following events normally occur:

1. The main motor starts to run.
2. The pickup clutch solenoid pawl lifts, enabling the clutch to turn the pickup shaft and roller.
3. The pickup roller shaft makes one full revolution and stops.
4. The top sheet of paper is picked up and pushed into the paper path towards the registration rollers.
5. The cork surface of the pickup pressure pad eliminates multiple feeds.
6. You can see the paper curl as the leading edge is pushed into the nip of the registration rollers. When the registration rollers turn, the entire length of the leading edge is grasped and the sheet is pulled into the printer.

If performing the above procedure causes jams in area 1, refer to Table 5-6, look up the cause, find the description and recommended course of action.

Table 5-6 Area 1 Jams

Possible Cause	Description and Action
Paper jammed in the fixing unit	Fixing unit jams are covered in area 3. Go to Section 5.7.5.
Defective or damaged paper	<p>Is a recommended type of paper being used? If in doubt, try a standard type of paper to see if jamming continues.</p> <p>Perform the following steps to eliminate any bad paper:</p> <ol style="list-style-type: none">1. Is the cassette overloaded or loaded correctly? Remove and fan the paper and reload the cassette.2. The paper may be too damp. Select dry paper from the center of a freshly opened package.3. The paper may be damaged. Look for wrinkles. All edges must be straight and sharp and not damaged or dog-eared.4. The paper may be contaminated by adhesives.5. The paper may be compressed during storage. Fan the paper before loading the cassette.

Table 5-6 (Cont.) Area 1 Jams

Possible Cause	Description and Action
Overloaded or damaged cassettes	Check the operation of the paper pressure lever and of the pickup roller, and check for obstructions in the paper path.
Multiple or shingle feeding	<p>Multiple or shingle feeding can be caused by defective or damaged paper or by a malfunctioning FRU.</p> <p>The term <i>multiple feeding</i> means that more than one sheet at a time is fed into the printer. Multiple feeds may not cause a jam indication, but do cause image defects and are bothersome to the customer.</p> <p>The term <i>shingle feeding</i> means that the trailing edge of one sheet is overlapped by the leading edge of the next sheet and so on, like roofing shingles. The sheets feed through the printer as one continuous sheet. A jam occurs when the fixing exit sensor fails to see the trailing edge.</p> <p>Check the paper supply and eliminate any of the following problems:</p> <ol style="list-style-type: none"> 1. Contamination of the paper by adhesive. 2. Compression of the paper during storage. Fan the paper before loading the cassette. 3. An overloaded cassette. <p>Swap the following components:</p> <ol style="list-style-type: none"> 1. Pressure pad 2. Pickup roller and clutch assembly 3. Solenoid and sensor board 4. DC control board
Cassette pickup failure	<p>Remove the top cover and find the pickup clutch and solenoid at the end of the pickup roller shaft. Perform test feeds and observe the operation of the pickup roller and clutch.</p> <ol style="list-style-type: none"> 1. Perform the following steps if the pickup roller turns but does not fully feed paper: <ol style="list-style-type: none"> a. Inspect the surface of the pickup roller. If you find any dirt or contamination, replace the pickup roller assembly. Do not disassemble or clean the assembly. b. Swap the pickup roller and clutch assembly. c. Swap the sensor and solenoid board. d. Swap the dc control board. 2. If the gears that drive the clutch do not turn after Test/Font is pressed, inspect the condition of and swap the following components: <ol style="list-style-type: none"> a. DC control board b. Transfer drive assembly c. Intermediate gear assembly d. Main motor assembly e. Sensor and solenoid board f. Pickup roller and clutch assembly
Paper jammed under the registration rollers	Registration roller jams are covered in area 2. Go to Section 5.7.4.

5.7.4 Area 2 Jams

FIP NOTES

Section 5.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

For a valid area 2 jam condition to exist, the jam must occur between the entrances of the registration and fixing unit rollers. If you determine that the paper never reached the registration rollers, return to Section 5.7.3. If the leading edge advances through the fixing unit rollers, turn to Section 5.7.5.

Area 2 Timing and Events

The following sequence of events occurs in area 2:

1. The registration rollers start, grasp the leading edge, and pull the sheet through the registration rollers.
2. The sheet is pushed across the transfer and static eliminator charge wires. The action of the transfer charger leaves a strong residual charge on the sheet. The residual charge can cause separation failure or the sheet tends to stick to the OPC drum or parts of the EP-S cartridge. The static eliminator discharges the residual charge, allowing the sheet to separate from the OPC drum.
3. After separation, the sheet is pushed by the registration rollers and directed by the feed guide roller into and across the feed guide assembly.
4. The feed guide assembly directs the leading edge into the entrance guide of the fixing unit.
5. The fixing unit entrance guides the leading edge into the nip of the heat and pressure rollers of the fixing unit. The fixing unit rollers grasp the leading edge, and the sheet is pulled into the fixing unit.

Table 5-7 Area 2 Jams

Possible Cause	Description and Action
Registration roller failure	<p>The following symptoms are typical of registration roller malfunctions:</p> <ul style="list-style-type: none">• A malfunction of the registration roller clutch or solenoid is indicated if the leading edge is pushed into, but does not go under, the nip of the registration rollers.• Registration roller surface contamination by grease or bearing malfunction is indicated when the sheet is crumpled and noticeably skewed to one side of the registration rollers.• A malfunction of the main motor or drive gears is indicated when the paper stops in the middle of the area 2 paper path. The sheet is lying flat, not out of alignment, and the lines of the printer image appear to be compressed. <p>Perform the following steps to correct a registration roller failure:</p> <ol style="list-style-type: none">1. Check the main motor connector, labeled J3 on the LVPSA.2. Swap the transfer drive assembly.3. Swap the solenoid and sensor board.4. Swap the dc control board.5. Swap the LVPSA.6. Swap the main motor.
Paper path obstruction or separation failure	<p>The registration rollers tend to push the sheet into an accordion fold when the sheet collides with some object in the paper path.</p> <p>Perform the following steps to remove the obstruction or fix the separation problem:</p> <ol style="list-style-type: none">1. Remove the EP-S cartridge and inspect it for damage.<ol style="list-style-type: none">a. There should be no toner leakage. Some toner can escape and become deposited on the exterior of the case during normal operation or if many jams have been cleared. Clean up any toner, using the special vacuum or a clean, damp cloth.b. Briefly flip open the OPC drum shutter. It should move smoothly, open fully, and shut automatically when released. Make sure the hinges and operation levers are undamaged.c. The EP-S cartridge case should be free of splits, cracks, or impact damage.2. Swap the EP-S cartridge.3. Examine the high-voltage spring contacts that connect from the HVPSA connector block to the transfer charge assembly. Replace the HVPSA if the contacts are burnt, pitted, or mangled.4. Swap the transfer corona assembly.5. Swap the HVPSA.6. Swap the dc control board.
Jams occur in fixing unit	<p>Replace the fixing unit.</p>

5.7.5 Area 3 Jams

FIP NOTES

Section 5.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

An area 3 jam involves the fixing unit, fork gate, entrance guides, and output rollers. The paper must first enter and exit the fixing unit. When the paper exits the fixing unit, the fork gate directs the paper up to the output rollers or to the faceup stack. The output rollers push the sheet into the facedown stack.

When the top cover closes the following three drive gears are meshed:

- A lever on the fixing unit is pressed, which meshes the fixing unit driven gear into the drive gear of the main motor transmission.
- The exit assembly is first pushed by the top cover, then pulled closed by the two coil springs. When the exit assembly is fully closed, the exit roller drive gear meshes with the gear train in the fixing unit.
- The output rollers are driven by the output drive gears. When the top cover closes, the output drive gear assembly meshes with the drive gear on the top of the fixing unit.

Table 5-8 describes area 3 jam symptoms and gives a course of action for repairing the malfunction.

Table 5-8 Area 3 Jams

Possible Cause	Description and Action
Leading edge does not reach the nip of the fixing rollers	Jam is an area 2 jam fault. Go to Section 5.7.4.
Paper jams in the fixing unit	<p>There are two types of fixing unit jams:</p> <ul style="list-style-type: none">• The sheet of paper is pushed fully into the nip, but the fixing rollers fail to turn and grasp the leading edge.• The sheet collides with an obstruction in the fixing unit, or the exit rollers or stripper fingers fail. <p>Perform the following steps to repair either problem:</p> <ol style="list-style-type: none">1. Remove and thoroughly inspect the fixing unit. Clean out any shreds of paper, and if you find any damage, install a new fixing unit. Make sure the exit assembly closes fully.2. Swap the fixing unit.3. Swap the main motor assembly.
Paper is misdirected, colliding with the fork gate or entering the incorrect output stack	<p>The fork gate is actuated by mechanical linkages that connect to the hinged door of the faceup stack. When the door is open, the fork gate directs paper into the faceup stack. When the door is closed, the fork gate sends paper into the entrance guides of the output rollers.</p> <p>Inspect the operation of the forkgate and faceup stack. Repair or replace any damaged components.</p>

Table 5–8 (Cont.) Area 3 Jams

Possible Cause	Description and Action
Jams occur at the entrance to the output rollers	Open the top cover and examine the entrance guide and fixing unit hold-down plate. Replace any parts that show signs of damage, obstruction, or contamination.
Output rollers	Perform the following steps if the output rollers do not turn or if they cause jams: <ol style="list-style-type: none">1. Closely inspect and manually turn the output rollers. Replace any components that are damaged, badly worn, or not functioning.2. Swap the fixing unit if the last step shows that the output rollers and drive gears function correctly.3. Swap the output roller assembly.

5.8 TROUBLESHOOTING IMAGE DEFECTS

You must evaluate the quality of the printed image whenever you service the DEClaser 2100 printer. Obtain one or several copies of TEST PRINT B. Inspect the test prints for satisfactory print image quality.

Table 5-9 describes symptoms and gives a course of action for fixing the image defects.

Table 5-9 Image Defect Lookup Table

Symptom	Description and Action
Light printing	<p>The text and dark areas of the printed image are too light. Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. The transfer corona assembly2. The connectors of the HVPSA and EP-S cartridge3. The levers that actuate the drum sensitivity switches on the solenoid and sensor board <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. Scanner assembly4. Solenoid and sensor board5. DC control board
Dark printing	<p>The printed text is too dark and heavy.</p> <p>Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. The connectors of the HVPSA and EP-S cartridge2. The levers that actuate the drum sensitivity switches on the solenoid and sensor board <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. Scanner assembly4. Solenoid and sensor board5. DC control board

Table 5-9 (Cont.) Image Defect Lookup Table

Symptom	Description and Action
The sheet is completely blank	<p>The sheet is completely white; no toner is printed on the sheet. Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. If the EP-S cartridge was recently installed, check that the toner seal was completely removed.2. The EP-S drum light cover should completely retract.3. The actuation tag that operates the beam shutter lever of the scanner assembly should not be damaged.4. The HVPSA connections to the EP-S cartridge and transfer corona assembly. <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. Transfer corona assembly4. Scanner assembly5. DC control board
Large blotchy white areas	<p>This symptom occurs when the OPC drum has been exposed to strong light, or if the toner in the EP-S cartridge is damp. Storing the EP-S cartridge in cold temperatures or high humidity causes toner to become damp.</p>
All black	<p>The entire image area is black. Inspect the connectors of the HVPSA and EP-S cartridge for dirt or damage.</p> <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. DC control board
In-line vertical spots	<p>Inspect the connection of the HVPSA and the static charge eliminator. Replace the HVPSA.</p>
Dirt (toner) on reverse side of paper	<p>Inspect the paper path for spilled toner. Thoroughly vacuum and clean the entire paper path, especially the following components:</p> <ol style="list-style-type: none">1. Cassette top2. Transfer guides3. Transfer charge wire4. Feed guide5. Fixing unit pressure roller <p>Inspect or replace the fixing unit cleaning pad</p> <p>Inspect the EP-S cartridge for signs of leaking toner.</p>
Vertical black streaks	<p>The symptoms are caused by a dirty primary charge wire or by failure of the OPC drum or fixing unit. The streak may be visible on the OPC drum or fixing unit. Perform the following steps:</p> <ol style="list-style-type: none">1. Clean the primary charge wire in the EP-S cartridge.2. Swap the EP-S cartridge.3. Swap the fixing unit cleaning pad.4. Swap the cleaning unit.

Table 5–9 (Cont.) Image Defect Lookup Table

Symptom	Description and Action
Thin black horizontal streaks	Swap the following FRUs: <ol style="list-style-type: none">1. The EP-S cartridge2. The scanner assembly3. The dc control board
Black, irregular, and smudged vertical lines	Perform the following steps: <ol style="list-style-type: none">1. Clean the primary charge wire.2. Replace the EP-S cartridge.
Black, irregular, and smudged horizontal bands	Swap the following FRUs: <ol style="list-style-type: none">1. The EP-S cartridge2. The fixing unit cleaning pad or the fixing unit
Blank spots in dark areas	The paper may be too moist. Try some dry paper from the center of a new package. Swap the following FRUs: <ol style="list-style-type: none">1. The EP-S cartridge2. The HVPSA
Solid white vertical lines in dark areas	This symptom can be caused by an obstruction in the path of the laser beam, or by dirt on the transfer charger. Perform the following steps: <ol style="list-style-type: none">1. Remove the EP-S cartridge and agitate it in the recommended fashion.2. Clean the transfer wire.3. Use a soft brush to clean the mirror.4. Swap the EP-S cartridge.5. Swap the transfer charger assembly.
Bad leading edge registration	The image is positioned back from the leading edge of the paper. Perform the following steps: <ol style="list-style-type: none">1. The cassette may be overloaded with paper.2. If an incorrect type of paper is being used, try a common paper type.3. Inspect the metal parts of the pickup roller clutch. If you find any signs of rust, damage, or distortion, replace the pickup roller assembly.4. Swap the solenoid and sensor board.5. Swap the dc control board.
Bad fixing or fusing	The text or image can be brushed off or easily rubbed off. Perform the following steps: <ol style="list-style-type: none">1. If an incorrect type of paper is being used, try a common paper type.2. Swap the fixing unit.3. Swap the dc control board.
Distortion	The printed image is wavy. Perform the following steps: <ol style="list-style-type: none">1. Swap the scanner assembly.2. Swap the dc control board.

UNIT 6

DEClaser 2200 TROUBLESHOOTING

6.1 INTRODUCTION

In this unit you are provided information on troubleshooting the DEClaser 2200 printer. This includes information on troubleshooting theory, power-up faults, control panel faults, paper jam and feed faults, and troubleshooting image defects.

6.2 OBJECTIVES

Upon successful completion of Unit 6, the CSE should be able to:

1. Follow the proper procedures to diagnose faults/failures in the DEClaser 2200.
2. Troubleshoot the DEClaser 2200 to the FRU level.

6.3 TROUBLESHOOTING

This unit describes the DEClaser 2200 troubleshooting fault isolation procedure (FIP). The FIP is a multipage step-by-step procedure used to verify and isolate malfunctions. The FIP allows you to arrive at the correct repair procedure. The **FIP Notes** inform you as to where you are in the overall FIP.

The FIP consists of the following major sections:

1. Sections 6.5 is for troubleshooting the vague symptoms caused by a malfunctioning ac line power, dc power supply, or control panel.
2. Sections 6.6 is for troubleshooting control panel alarms and display text, for example, interlocks, toner low, and paper outs.
3. Sections 6.7 is used to troubleshooting feed faults and paper jams.
4. Sections 6.8 is used to troubleshoot image defects. Before starting this section the printer must be able to feed and stack paper.

After you repair the DEClaser 2200 printer, perform the TCC procedure in Unit 9. If the page count on TEST SHEET A shows that 100,000 pages have printed, perform the 100K preventative maintenance procedure.

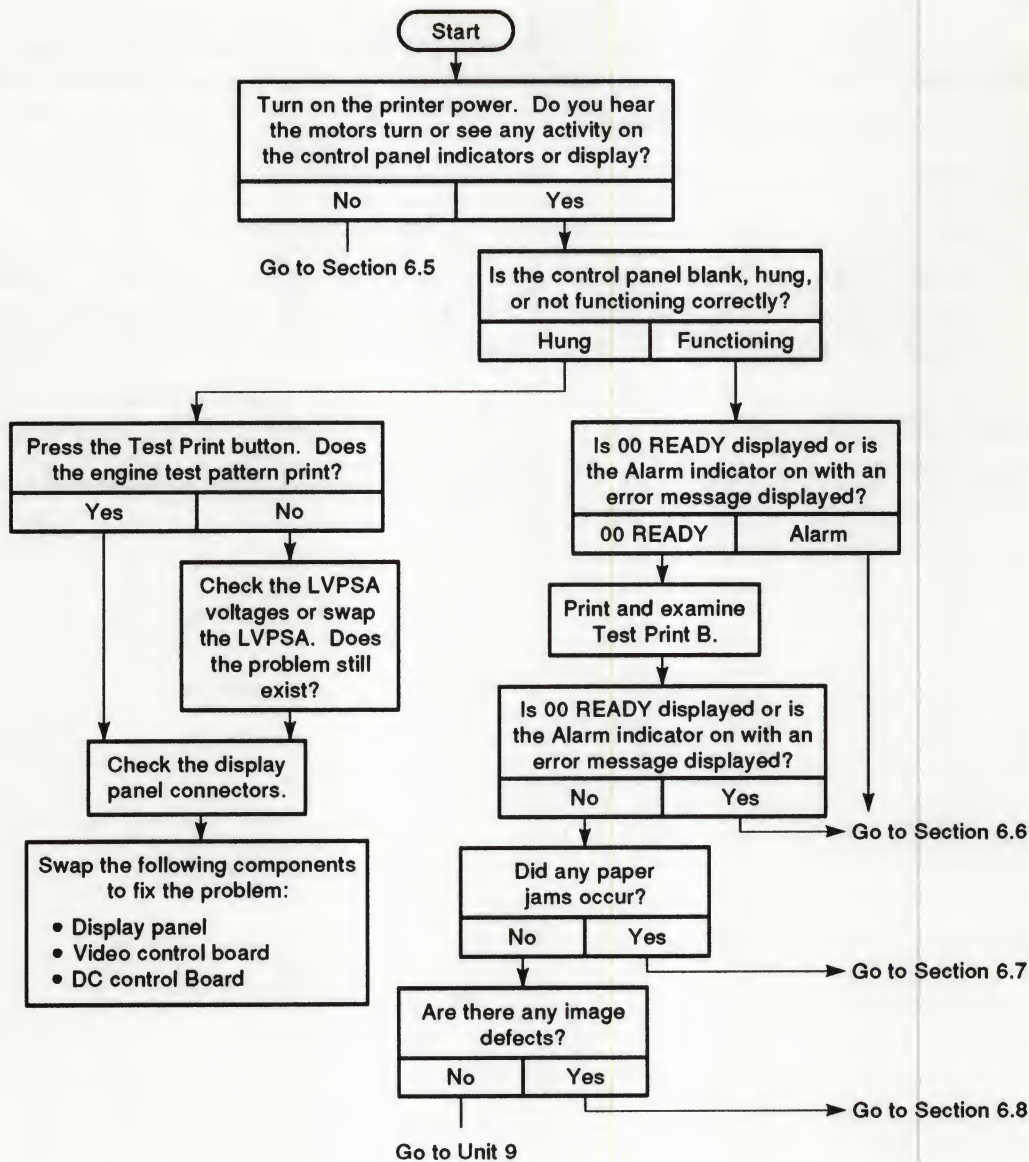
Make sure you fill out the DEClaser maintenance log before leaving the customer's site.

6.4 GETTING STARTED

Figure 6-1 is the start of the FIP. The FIP assumes that you have just arrived at the customer's site.

FIP NOTES

After completing Figure 6-1, you will be pointed to a more specific FIP.



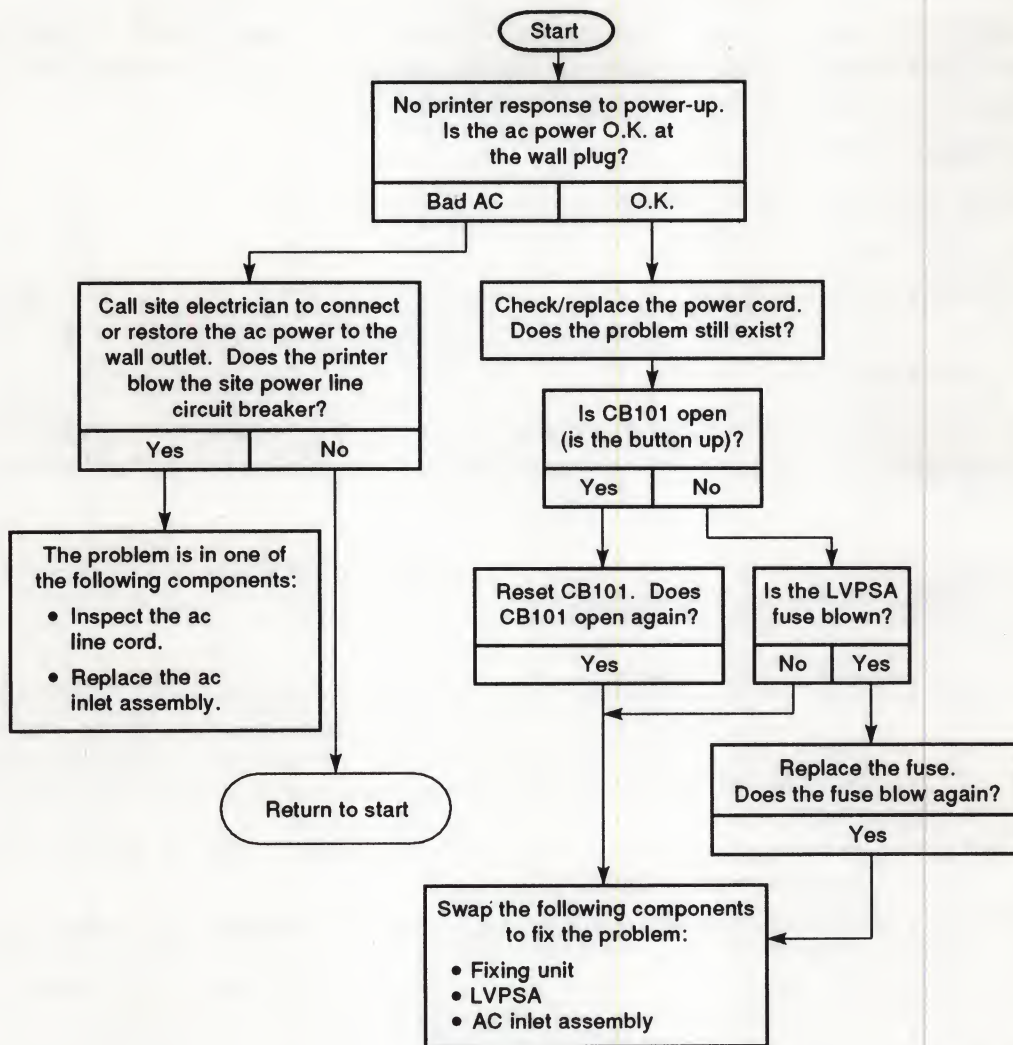
MKV-X4016-90

Figure 6-1 Start FIP

6.5 TROUBLESHOOTING POWER-UP FAULTS

You see and hear the following when you power up the DEClaser 2200 printer, assuming that both cassettes and an EP-S cartridge are installed, and no error condition is detected.

1. All control panel indicators come on.
2. Solid blocks appear momentarily on the control panel display.
If optional memory is installed, an active display pattern occurs.
3. The scanner, main, and duplex motors start up with a whirring sound. If any paper is left in the fixing unit, it moves into the fixing unit exit, inverter, or second pass sensor to produce a 13 PAPER JAM error message, and the fixing heater does not start.
4. The text 02 WARMING UP is displayed and the Ready indicator flashes. It takes less than two minutes to achieve the 160°C (320°F) fixing unit standby temperature.
5. The text 00 READY is displayed and the Ready indicator comes on steadily.



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Figure 6-2 Power-Up Fault

6.6 TROUBLESHOOTING CONTROL PANEL FAULTS

The following list points to the tables that interpret the control panel display text and give information about troubleshooting. A fault condition exists if messages are displayed frequently or continuously.

- Operational status messages, Table 6-1
- Operator call messages, Table 6-2
- Functional messages, Table 6-3
- Service messages, Table 6-4

6.6.1 Status Message and Faults

Table 6-1 lists all the display panel messages that are displayed during normal operation of the DEC laser 2200 printer. The operational status messages directly indicate the condition of the printer.

Table 6-1 Operational Status Messages

Number Message	Description and Action
00 READY	The printer is ready to print. If the On Line indicator is on, print files can be sent from the host. If the On Line indicator is off, the printer is in the off-line READY mode. In the normal mode you can print test sheets, enter the setup menus, or perform any off-line task.
01 TEST PRINT B	The printer is generating and printing TEST PRINT B. See Section 4.5.3 for more information about TEST PRINT B.
02 WARMING UP	The printer is waiting for the fixing unit to reach operating temperature. If the fixing unit fails to reach the correct operating temperature, the 50 SERVICE message is displayed.
03 RESET	This message is displayed for about four seconds to confirm that the reset function is completed. Pressing Reset initiates the reset function.
04 TEST STOP	This message is displayed to show that the generation and printing of a test pattern is stopping. The message is displayed while the remaining paper is printed and ejected.
05 TEST PRINT A	This message is displayed during the generation and printing of TEST PRINT A.
06 FONT LIST	This message is displayed during the generation and printing of the FONT LIST.
06-10	Not used.

6.6.2 Operator Call Messages and Faults

When an operator call condition occurs, the printer goes off-line and an operator call message is displayed. The message disappears automatically as soon as the condition is corrected. A fault condition exists when the message cannot be cleared or is displayed for no apparent reason.

Table 6-2 lists all operator call messages, explains the message, and provides troubleshooting information if the message faults.

Table 6-2 Operator Call Messages

Number Message	Description and Action
11 PAPER OUT	<p>The selected cassette or envelope feeder is empty or no cassette is installed in the selected cassette slot. An unselected cassette slot is ignored.</p> <p>The paper-out sensor and linkage detect an empty cassette and the cassette size-sensing switches detect a missing cassette.</p> <p>Troubleshooting</p> <p>Use the following procedure to fix a paper out fault:</p> <ol style="list-style-type: none">1. Select or install a full cassette.2. Inspect and swap the cassette.3. Inspect and swap the paper-out sensor assembly. <p>The upper cassette paper-out sensor is located on the solenoid and sensor board which is part of the LVPSA. The lower cassette paper-out sensor is attached to the duplex bulkhead. Inspect the linkage for freedom of movement and damage.</p> <ol style="list-style-type: none">4. Inspect and swap the cassette size-sensing switches. <p>The upper size-sensing switches are attached to the engine baseplate. The lower size-sensing switches are on the dc control board. Repair or replace any binding or sticking levers.</p> <ol style="list-style-type: none">5. Swap the dc control board.6. Swap the video control board.
12 PRINTER OPEN	<p>This message is displayed when the top cover of the printer is open. When the top cover is closed, the top cover switch lever presses the interlock switches. One interlock switch interrupts the main motor drive current; the other switch signals the dc control board.</p> <p>Troubleshooting</p> <p>Do the following if closing the cover does not automatically clear the error:</p> <ol style="list-style-type: none">1. Inspect the top cover switch lever for any damage. Make sure you hear both switches actuate as the top cover is closed. Do not confuse the sound of the drum sensitivity switches with that of the interlock switches.2. Inspect and manually actuate the interlock switch. Fix or replace the LVPSA if you find the switches are damaged or not operable.3. Replace the LVPSA.4. Replace the dc control board.

Table 6-2 (Cont.) Operator Call Messages

Number Message	Description and Action
13 PAPER JAM	<p data-bbox="485 327 1425 443">This message is displayed when paper is jammed in the paper path. The dc control board inhibits printer operation until you clear out the paper and return the printer to on-line operation. The indicators on the jam panel show the most likely position of the jam.</p> <p data-bbox="485 453 1425 506">The jam display and indicators clear when you open and close the top cover, or when you press Error Skip.</p> <p data-bbox="485 527 716 558">Troubleshooting</p> <p data-bbox="485 579 1203 600">To begin troubleshooting a jam, turn to the start FIP at Figure 6-3.</p>
14 NO EP-CART	<p data-bbox="485 611 1382 663">This message is displayed when the top cover is closed and both drum sensitivity switches remain off.</p> <p data-bbox="485 674 1425 789">When the top cover is closed, the sensitivity tabs on the EP-S cartridge actuate one or both of the drum sensitivity switches that signal the dc control board. The dc control board responds to the signal by setting the laser beam intensity and allowing the initialization process to proceed.</p> <p data-bbox="485 810 716 842">Troubleshooting</p> <p data-bbox="485 863 1295 894">Do the following if the error cannot be cleared or if it appears intermittently:</p> <ol data-bbox="485 905 1425 1178" style="list-style-type: none">1. Inspect the sensitivity tabs on the EP-S cartridge. Either one or two tabs must be installed. If there are no tabs, replace the EP-S cartridge.2. Inspect the levers that actuate the drum sensitivity switches on the sensor and solenoid board. Press the levers with your finger, listen for the clicking of both switches, and make sure the levers move freely. Make sure the switches actuate when the top cover is closed. Replace the sensor and solenoid board if the sensitivity switches are defective.3. Swap the LVPSA.4. Replace the dc control board.
15 ENGINE TEST	<p data-bbox="485 1199 1438 1283">This message is displayed during the generation and printing of the print engine internal test pattern, which is initiated when you press the TEST PRINT button on the dc control board.</p>
16 TONER LOW	<p data-bbox="485 1293 1438 1346">This message is displayed if the toner supply in the EP-S cartridge is exhausted or if the toner is compacted into cakes and unable to flow.</p> <p data-bbox="485 1367 716 1398">Troubleshooting</p> <p data-bbox="485 1419 1214 1451">Do the following if the message is intermittent or cannot be cleared:</p> <ol data-bbox="485 1461 1438 1782" style="list-style-type: none">1. Remove and agitate the EP-S cartridge to loosen up the toner. Replace the EP-S cartridge if the printer prints for a while, then the message is redisplayed.2. Inspect the HVPSA and EP-S connectors for dirt, pitting, damage, or contamination. If any damage is found, replace the FRU. Do not try to scrape, bend, or repair the contacts. <p data-bbox="534 1619 1414 1682">Remove any dust or paper chips with a dry brush. Do not use liquid, aerosol, or any other type of contact cleaner on the high-voltage connectors.</p>3. Swap the EP-S cartridge.4. Swap the HVPSA.5. Replace the dc control board.

Table 6-2 (Cont.) Operator Call Messages

Number Message	Description and Action
17 U<-->L	<p data-bbox="467 327 1422 380">This display appears when the feeder selection is set to automatic and two different size cassettes are installed or if one of the cassettes is out of paper.</p> <p data-bbox="467 390 1422 443">To clear the display, make sure both cassettes are fully installed, are the same size, and contain paper.</p> <p data-bbox="467 474 695 495">Troubleshooting</p> <p data-bbox="467 516 1422 600">This fault condition is usually caused by a bad component in either the upper or lower feed slot. When the error occurs, the control panel feed source indicators might point to the malfunctioning feed slot.</p> <ol data-bbox="467 621 1422 737" style="list-style-type: none">1. Select and test each upper and lower cassette individually. Press Feeder Select to select FEEDER = UPPER then to select FEEDER = LOWER.2. If the 17 U<-->L message is still displayed when FEEDER = AUTO is selected, swap the dc control board.
18 EC INCORRECT	<p data-bbox="467 758 1422 810">This message appears whenever the envelope cassette is installed in the lower cassette slot. Do not confuse the envelope cassette with the optional envelope feeder.</p> <p data-bbox="467 821 1422 842">To clear the display remove the envelope cassette and install it in the upper cassette slot.</p> <p data-bbox="467 873 695 894">Troubleshooting</p> <p data-bbox="467 915 1422 968">A fault exists if this display appears and the envelope cassette is not installed in the lower slot. Perform the following steps to fix the problem:</p> <ol data-bbox="467 989 1422 1083" style="list-style-type: none">1. Inspect the actuation levers of the lower cassette size-sensing switches. Fix or replace any damaged or nonfunctioning components.2. Replace the dc control board.
19 PAPER PATH 3	<p data-bbox="467 1104 1422 1188">This text is displayed when the host system specifies feeding from the envelope cassette while the printout selector is set for facedown (upper) stacking. All envelope printing requires simplex print mode and faceup (rear) stacking.</p> <p data-bbox="467 1199 1308 1220">To clear this error, turn the printout selector to the up faceup stacking position.</p> <p data-bbox="467 1251 695 1272">Troubleshooting</p> <p data-bbox="467 1293 1422 1377">A malfunctioning printout selector switch circuit causes this type of error. Refer to the troubleshooting section of 19 PAPER PATH 4 in this table for testing and fixing information.</p>
19 PAPER PATH 4	<p data-bbox="467 1388 1422 1472">This message is displayed if the printout selector is turned to the faceup stacking position while duplex printing is selected. The printout selector switch detects the position of the printout selector shaft.</p> <p data-bbox="467 1482 1422 1535">To clear this error, turn the printout selector to the down duplex facedown stacking position.</p> <p data-bbox="467 1566 695 1587">Troubleshooting</p> <p data-bbox="467 1608 1422 1661">A malfunctioning printout selector switch circuit causes this type of error. Use the following procedure to test and repair:</p> <ol data-bbox="467 1682 1422 1831" style="list-style-type: none">1. Open the top cover so you can see behind the inverter unit and make sure the inverter connectors are fully plugged into the bulkhead of the duplex unit.2. Remove the inverter side panels and examine the action of the printout selector switch. Fix or replace any damaged parts or replace the inverter unit.3. Swap the dc control board.

Table 6-2 (Cont.) Operator Call Messages

Number Message	Description and Action
PC LOAD A4 PC LOAD LETTER PC LOAD LEGAL PC LOAD EXEC. PC LOAD PAPER <i>nn</i>	<p>A PC LOAD request signals the operator to remove the selected cassette, install the requested size cassette, and press Error Skip, then On Line to resume the printing operation.</p> <p>The PC LOAD PAPER <i>nn</i> message requests the operator to load the envelope cassette. The <i>nn</i> is the paper size code number that corresponds to a specific type of envelope. The <i>nn</i> number range is 80-99.</p> <p>Troubleshooting</p> <p>Do the following if the message is displayed when the correct size cassette is installed:</p> <ol style="list-style-type: none">1. Inspect the cassette key and if it is damaged, replace the cassette. Switch the correct size cassette into the opposite slot and select that slot. If the problem switches to the opposite slot with the cassette, replace the cassette.2. Inspect and swap the cassette size-sensing switches The upper size-sensing switches are attached to the engine baseplate. The lower sensing switches are located on the dc control board. Repair or replace any binding or sticking levers.3. Swap the video control board.4. Swap the dc control board.
PC LOAD OPTION	This message is displayed to request the operator to install the optional envelope feeder.

Table 6-2 (Cont.) Operator Call Messages

Number Message	Description and Action
PF FEED A4	The PF FEED message requests the operator to insert a sheet of paper into either manual paper feeder.
PF FEED LETTER	
PF FEED LEGAL	When the upper or lower manual feed sensor is actuated, the printer delays momentarily to allow the operator to fully insert the sheet, and then it feeds and prints the sheet.
PF FEED EXEC.	The PF FEED PAPER <i>nn</i> message requests the operator to manually load and feed a nonstandard size paper. The <i>nn</i> number range is 80-99.
PF FEED PAPER <i>nn</i>	

Troubleshooting

Repeat the following procedure on the upper and lower cassette slots to test, find, and fix a manual feed fault.

1. Press **Feeder Select** until the FEEDER = MANUAL message is displayed.
2. Press **Test/Font** to print a test pattern. The PF LOAD message is displayed. The requested size paper to load is determined by the size of the installed cassette or by the value selected for the paper feature on the initial setup menu. See Table 4-4 for more information about the setup menu.
3. Insert a sheet of paper into the manual feeder. A fault exists if the the display message does not change and the pickup roller does not turn.
4. Perform the following steps to fix a PF FEED fault:
 - a. Swap the LVPSA, if the upper cassette slot is faulty.
 - b. Swap the sensor on the lower cassette sensor assembly, if the lower cassette slot is faulty.
 - c. Swap the dc control board.

NOTE

If the top sheet of the cassette paper feeds, instead of the manual feed sheet, you are not pushing the paper far enough or fast enough into the manual feeder. If the sheet feeds but jams, go to Section 6.7.1 to fix the paper feeding or jamming problem.

OC text
(16 characters)

Operator action request message. Press **Error Skip**, then **On Line** to continue printing.

6.6.3 Functional Messages and Faults

Table 6–3 lists all status messages, explains the message, and provides troubleshooting information if the message faults.

Table 6–3 Functional Messages

Number Message	Description and Action
FE FONT REMOVAL	<p>A font cartridge was removed or inserted while the printer was powered on. To clear this error, power the printer off, then on. Always insert or remove a font cartridge while the printer is powered off.</p> <p>Swap the video control board if you cannot clear the error.</p>
FF FONT FULL	<p>There is insufficient memory space for loading of an additional font or there are too many down-line loaded fonts. Memory can be cleared by a software command from the host or by pressing [Reset].</p>
20 PAGE FULL	<p>The host system is overflowing the page (input) buffer memory.</p> <p>Press [Error Skip], then [On Line] to print the overflow data on the next page.</p> <p>To avoid this error, delete unused character sets and use the full paint mode. If this error occurs frequently, the customer can install optional memory to increase available RAM.</p>
21 COMPLEX DATA	<p>The host system is loading the page buffer faster than the printer can print. Press [Error Skip], then [On Line] to continue printing on the next page.</p> <p>Set the paint = full value from the initial setup menu.</p>
22 LINE ERROR	<p>The host is sending data when the printer is in the busy state. This causes an overflow of the receive buffer memory. Press [Error Skip], then [On Line] to continue. The overflow data does not print.</p> <p>This error can occur when the customer powers up the printer before powering up the attached host system.</p> <p>If this error occurs frequently, check the data cable between the host and printer and make sure the printer interface settings match the settings of the host.</p> <p>If you cannot clear this error, swap the video control board.</p>
23 MEMORY FULL	<p>An overflow occurred while the host was down-line loading user defined character patterns to the printer.</p> <p>Press [Error Skip], then [On Line] to continue receiving data and to ignore the data that caused the error.</p> <p>If this error occurs frequently, the customer can increase memory by installing an optional RAM expansion.</p>
24 FULL PAINT REJ	<p>Insufficient memory space to use full paint mode. The customer can increase memory space by installing an optional RAM expansion.</p> <p>Press [Error Skip], then [On Line] to continue printing in partial paint mode.</p>
25 VECTOR REJ	<p>Vector graphics commands from the host system cannot be used because the printer is not in full paint mode. You have two possible actions:</p> <ul style="list-style-type: none">• Press [Error Skip], then [On Line] to continue printing. Subsequent vector graphics commands are treated as text and printed.• Stop sending data from the host, select the paint = full value from the initial setup menu, then send the data from the host again.

NOTE

Vector graphics commands cause the printer to fill in closed areas of circles, ellipses, and other shapes.

Table 6-3 (Cont.) Functional Messages

Number Message	Description and Action
26 MEMORY FULL	<p>The work memory used by the video control board has overflowed and the current operation cannot be done. If this error occurs too frequently, the customer can increase the available memory by installing an optional RAM expansion board.</p> <p>Press Error Skip, then On Line to continue receiving data from the host. The offending operation is ignored.</p>
27-39	Not used.
40 LINE ERROR	<p>The printer detects errors in the serial data received from the host. The printer stops printing before the offending page and displays the error message.</p> <p>Do the following:</p> <ol style="list-style-type: none">1. Press Error Skip, then On Line to continue receiving data.2. Inspect the data cable and connectors between the host and printer and make sure the printer interface settings match the settings of the host.
41 PRINT CHECK	<p>A soft error occurred that can cause a print defect. Remove and discard the top sheet from the stack. Press Error Skip to continue printing and to reprint the discarded sheet. If the error occurs frequently or cannot be cleared, do the following:</p> <ol style="list-style-type: none">1. Check the connection between the scanner assembly and dc control board.2. Swap the scanner assembly.3. Swap the dc control board.
42 ERROR	Expansion interface board error.
43 ERROR	Expansion interface board error.

6.6.4 Service Messages

Table 6-4 lists all service error messages, explains the message, and provides troubleshooting information if the message faults.

Table 6-4 Service Messages

Number Message	Description and Action
50 SERVICE	<p>This fixing unit fault message is caused by a malfunction of the regulation of the fixing unit temperature. If the fixing unit heater is inoperative when the power is turned on, the 02 WARMING UP message is displayed for two minutes before the 50 SERVICE message is displayed.</p> <p>Troubleshooting</p> <p>Use the following procedure to correct the fixing unit temperature problem:</p> <ol style="list-style-type: none">1. If the error occurs at power-up, the malfunction might be corrected but you may not have allowed a full 10 minutes of power off time for the error to clear.2. Inspect or swap the fixing unit. Make sure the fixing unit connectors are undamaged and the pins align correctly with the sockets. If you find any damage, replace the fixing unit.3. Swap the ac inlet assembly.4. Swap the dc control board.
51 SERVICE	<p>The dc control board fails to detect the beam detect (BD) signal from the scanning unit. Inspect the actuator tab on the EP-S cartridge and the shutter lever mechanism on the scanner assembly for signs of damage. Make sure the tab actuates the shutter lever on the scanner assembly when the top cover closes.</p> <p>Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. EP-S cartridge2. Scanner assembly3. DC control board
52 SERVICE	<p>The scanner motor is not up to speed. Check the scanner assembly electrical connectors for good connections. Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Scanner assembly2. DC control board <p>53-55 SERVICE not used.</p>
56 SERVICE	<p>The home position notch on the alignment cam was not detected by the home position sensor. Do the following:</p> <ol style="list-style-type: none">1. Inspect the connector that connects the alignment guide drive unit to the wire harness of the duplex unit.2. Inspect the J214 connector to the dc control board.3. Swap the alignment guide drive unit as shown in Unit 8.4. Swap the dc control board. <p>57-59 SERVICE not used.</p>
60 SERVICE	<p>This is a direct memory access (DMA) error that occurs after you power up the printer. Swap the following components until the message clears:</p> <ol style="list-style-type: none">1. Video control board2. DC control board

Table 6-4 (Cont.) Service Messages

Number Message	Description and Action
61 SERVICE	A checksum error was detected in the program and font ROMs. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
	62 SERVICE not used.
63 SERVICE	RAM errors were detected after power-up. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
	64-67 SERVICE not used.
68 SERVICE	NVRAM errors were detected after printer power-up. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
69 SERVICE	A timeout error occurred because no status information was returned from the expansion interface. To clear this error, you must power the printer off, then on. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
70 SERVICE	Errors were detected in the expansion board RAM. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
71 SERVICE	Errors were detected in the S-CPU during power-up. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
72 SERVICE	A communication error occurred between the S-CPU and M-CPU. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
73 SERVICE	An error was detected in the S-CPU during operation. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board

Table 6-4 (Cont.) Service Messages

Number Message	Description and Action
74 SERVICE	A power-up error is detected in the M-CPU. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
75 SERVICE	A signaling or communication problem has occurred between the dc and video control boards. The \overline{VSREQ} signal is asserted while the \overline{PRINT} signal is not. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board <p>76-79 SERVICE not used.</p>
80 SERVICE	A signaling or communication problem has occurred between the dc and video control boards. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
81 SERVICE	A COMMAND or STATUS signal parity error is detected. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
82 SERVICE	Bit 3 of the printer status bit is a 1. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
83 SERVICE	Bit 7 of the printer status bit is a 1. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
84 SERVICE	This is a timeout error. The video control board has failed to transmit one page of video to the dc control board. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
85 SERVICE	This is a timeout error. The \overline{VSREQ} signal was not asserted after the \overline{PRINT} signal. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board

Table 6-4 (Cont.) Service Messages

Number Message	Description and Action
86 SERVICE	An illegal command or status is detected. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board
87 SERVICE	The video control board is connected with a foreign engine. Swap the following components until the message clears: <ol style="list-style-type: none">1. Video control board2. DC control board

6.7 TROUBLESHOOTING PAPER JAM AND FEED FAULTS

This section is the FIP for correcting paper jam problems in the DEClaser 2200 printer. Unit 1 gives a short review of the rollers, sensors, and the shape of the paper path. Section 6.7.1 is the place to start after you determine that the printer has a jamming problem. Section 6.7.1.1 defines the four paper path areas when jams occur.

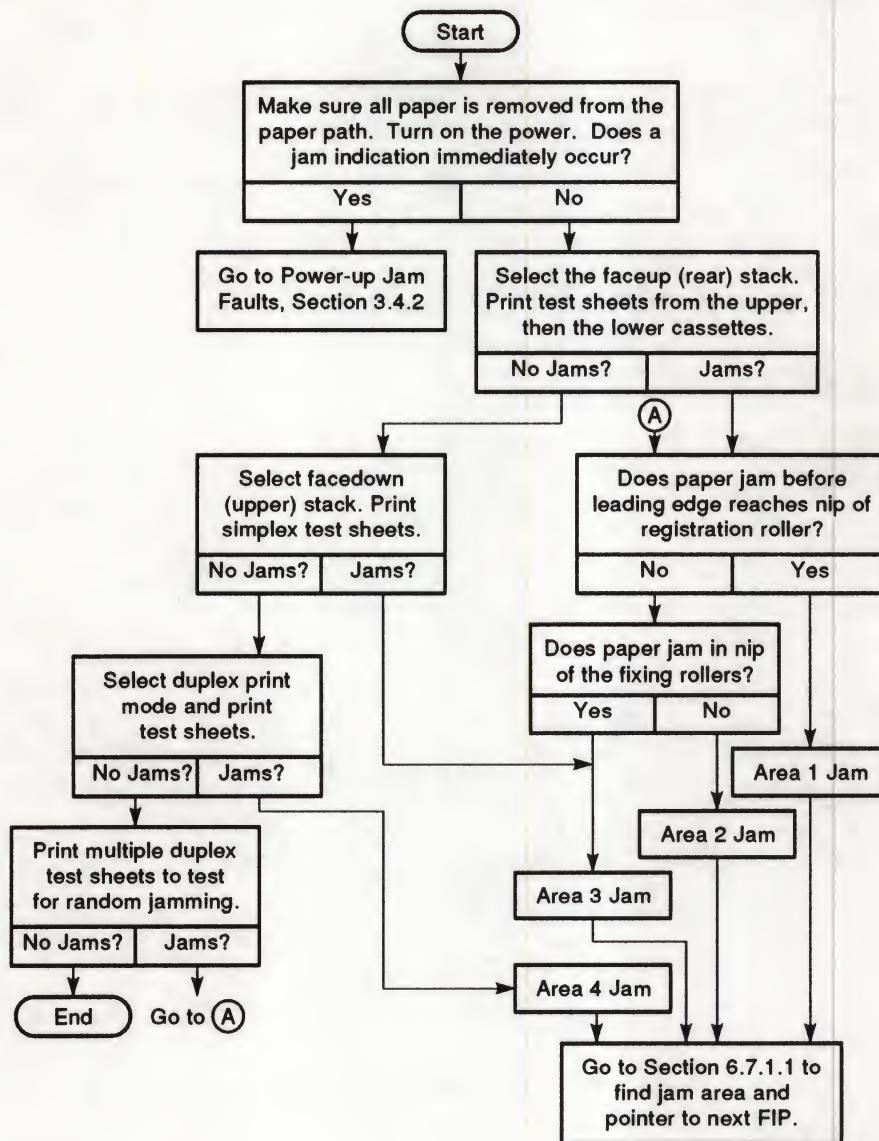
6.7.1 Jam Troubleshooting Start FIP

Figure 6-3 is the starting point for troubleshooting jam problems in the DEClaser 2200 . Read the instructions and follow each step. At the end of Figure 6-3 you will be directed to the next procedure.

FIP NOTES

This section of the FIP is used to repair a printer that jams or displays jam symptoms. Start your troubleshooting at Figure 6-3, which will direct you to one of the following specific subsections:

- **Section 6.7.1 for jam indications that occur at powerup or occur spontaneously. These indications are sometimes called phantom jams because there is no sheet of paper in the paper path.**
- **Sections 6.7.2 - 6.7.6 for jams that occur in areas 1, 2, 3, or 4 that are inside the printer. Figure 6-4 shows the location and boundaries of the three areas.**



MKV-X4015-90

Figure 6-3 Jam Start FIP

6.7.1.1 The Four Paper Path Jam Areas

FIP NOTES

This is the second step of the jam FIP. The FIP start is Section 6.7.1. The start jam FIP (Figure 6-3) precedes this step.

The start jam FIP (Figure 6-3) isolated the jam to a specific area. Use Figure 6-4 to visually locate the areas. Once you determine which area the jams occur in, turn to the indicated section.

- ① Area 1, the upper and lower pickup, Section 6.7.3
- ② Area 2, the registration rollers, Section 6.7.4
- ③ Area 3, the fixing and output roller, Section 6.7.5
- ④ Area 4, the inverter and duplex units, Section 6.7.6

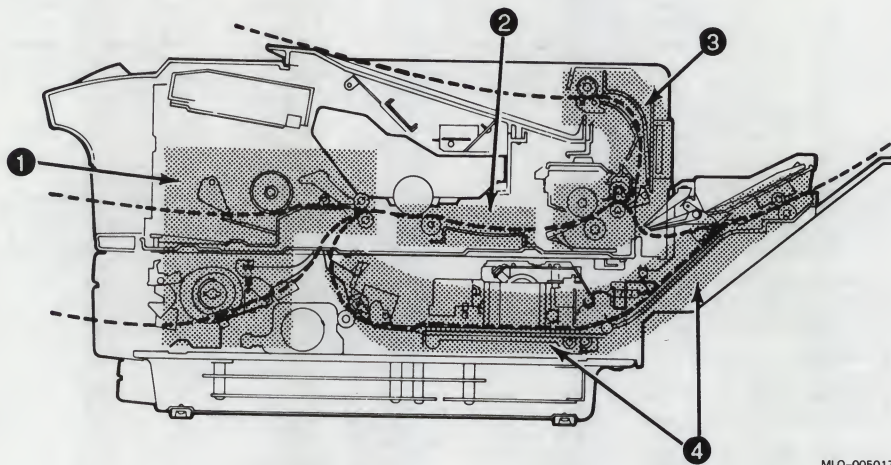


Figure 6-4 DEClaser 2000 Jam Areas

About the Jam Areas

Figure 6-4 shows how the paper path is divided into the four areas. Always troubleshoot the lowest numbered areas first, for example, area 1 before area 3, and so on.

Areas 1, 2, and 3 are named for the rollers that move and control the sheet as it passes through the area. The exit sensor on the fixing unit is the basic cause of all area 1, 2, and 3 jams.

In area 4, the inverter, alignment, and second path rollers move the sheet, and the inverter and second pass sensors detect the leading and trailing edges.

6.7.2 Power-Up Jams

FIP NOTES

Section 6.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

The following sequence of events defines the power-up jams. Turn to Table 6-5 to fix the power-up jam fault.

1. You examine the printer, inverter, and duplex unit paper path and find no paper.
2. You turn the printer power on.
3. The printer goes through the normal period of self-test.
4. The printer beeps and the orange Alarm indicator lights.
5. The 13 PAPER JAM message is displayed along with one or more jam indicators.
6. The jam condition prevents the fixing unit from heating up.

Table 6-5 Power-Up Jams

Jam Indicators	Description and Action
Printer	<p>All printer jams are caused by the fixing unit exit sensor. The exit sensor is mounted on the fixing unit and is actuated by the flag linkage. When there is no paper in the fixing unit, gravity pulls down the flag linkage and blocks the sensor.</p> <p>Perform the following steps if the printer indicator comes on at power-up:</p> <ol style="list-style-type: none">1. Remove the fixing unit and inspect the exit sensor and the sensor linkage. Clean any dust and pieces of paper from the fixing unit and sensor assembly. Make sure the linkage moves freely. If you find any damage, install a new fixing unit.2. Remove, inspect, and replace the fixing unit, making sure the 6-pin connectors on the fixing unit and baseplate mate correctly. Power on the printer to see if the printer jam is fixed.3. Swap the fixing unit.4. Remove the duplex gear side cover and make sure the J214 connector is firmly plugged in.5. Swap the dc control board.
Inverter and printer	<p>This symptom occurs at power-up if a sheet of paper is holding down the inverter sensor linkage. Perform the following to fix this problem:</p> <ol style="list-style-type: none">1. Manually actuate the inverter sensor linkage. The linkage normally sticks up, protruding into the inverter paper path. Make sure the linkage moves freely, and when released, returns to the up position.2. Remove the duplex gear side cover and make sure the J215 connector is firmly plugged in.3. Swap the inverter sensor.4. Swap the dc control board.

Table 6-5 (Cont.) Power-Up Jams

Jam Indicators	Description and Action
Duplex and printer	<p data-bbox="537 296 1446 359">This symptom occurs at power-up if a sheet of paper is lifting up the sensor lever of the second pass sensor. Perform the following steps to fix the problem:</p> <ol data-bbox="537 373 1446 720" style="list-style-type: none"><li data-bbox="537 373 1446 457">1. Open the side access cover and examine the second pass sensor assembly and linkage. When you manually actuate the linkage, it should move freely and not bind.<li data-bbox="537 468 1446 531">2. Remove the duplex gear side cover and make sure the J215 connector is firmly plugged in.<li data-bbox="537 541 1446 604">3. Remove the sensor shield to see if the sensor is mounted and plugged in correctly.<li data-bbox="537 615 1446 678">4. Remove the duplex gear side cover and make sure the J214 connector is firmly plugged in.<li data-bbox="537 688 1029 720">5. Swap the second pass sensor assembly.<li data-bbox="537 730 878 762">6. Swap the dc control board.
Printer, inverter, and duplex all on	<p data-bbox="537 737 1446 821">When the display occurs after power-up with no paper involved, this indicates a serious malfunction of the dc control board. Perform the following steps to fix the problem:</p> <ol data-bbox="537 846 1446 930" style="list-style-type: none"><li data-bbox="537 846 1446 909">1. Remove the duplex gear side cover and make sure all connectors are firmly plugged in.<li data-bbox="537 919 878 930">2. Swap the dc control board.

6.7.3 Area 1 Jams

FIP NOTES

Section 6.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

An area 1 jam occurs when an upper or lower pickup roller fails to pick up a single sheet of paper and then to push the leading edge into the nip of the registration rollers. If the registration rollers grasp the sheet, it is an area 2 jam. The dc control board controls the timing of the pickup solenoids that, when energized, allows the pickup clutches to turn the pickup roller shafts.

Area 1 Timing and Events

First isolate the pickup failure to either the upper or the lower cassette slot.

Make sure the cassette is fully inserted and the stack lift lever lifts the paper up into the pickup rollers.

When you press **Test/Font**, the following events normally occur:

1. The main and duplex motors start to run.
2. The selected pickup clutch solenoid pawl lifts, enabling the clutch to turn the pickup shaft and roller.
3. The pickup roller shaft makes one full revolution and stops.
4. The top sheet of paper is picked up from the selected stack and pushed into the paper path towards the registration rollers.
5. The cork surface of the pickup pressure pad eliminates multiple feeds.
6. You can see the paper curl as the leading edge is pushed into the nip of the registration rollers. When the registration rollers turn, the entire length of the leading edge is grasped and the sheet is pulled into the printer.

If performing the above procedure causes jams in area 1, refer to Table 6-6, look up the cause, and find the description and recommended course of action.

Table 6-6 Area 1 Jams

Possible Cause	Description and Action
Paper is jammed in the fixing unit	Fixing unit jams are covered in area 3. Go to Section 6.7.5.
Defective or damaged paper	<p>Is a recommended type of paper being used? If in doubt, try a standard type of paper to see if jamming continues.</p> <p>Perform the following steps to eliminate any bad paper:</p> <ol style="list-style-type: none"> 1. Is the cassette overloaded or loaded correctly? Remove and fan the paper and reload the cassette. 2. The paper may be too damp. Select dry paper from the center of a freshly opened package. 3. The paper may be damaged. Look for wrinkles. All edges must be straight and sharp and not damaged or dog-eared. 4. The paper may be contaminated by adhesives. 5. The paper may be compressed during storage. Fan the paper before loading the cassette.
Overloaded or damaged cassette	<p>Swap the cassettes between the upper and lower cassette slots.</p> <p>If the problem shifts to the opposite slot check the cassette for damage, overloading, or missing components.</p> <p>If the problem stays with the original cassette slot, check the operation of the paper pressure lever and of the pickup roller, and check for obstructions in the paper path.</p>
Multiple or shingle feeding	<p>Multiple or shingle feeding can be caused by defective or damaged paper or by a malfunctioning FRU.</p> <p>The term <i>multiple feeding</i> means that more than one sheet at a time is fed into the printer. Multiple feeds may not cause a jam indication, but do cause image defects and are bothersome to the customer.</p> <p>The term <i>shingle feeding</i> means that the trailing of one sheet is overlapped by the leading edge of the next sheet and so on, like roofing shingles. The sheets feed through the printer as one continuous sheet. A jam occurs when the fixing exit sensor fails to see the trailing edge.</p> <p>Check the paper supply and eliminate any of the following problems:</p> <ol style="list-style-type: none"> 1. Contamination of the paper by adhesive. 2. Compression of the paper during storage. Fan the paper before loading the cassette. 3. An overloaded cassette. <p>Swap the following components:</p> <ol style="list-style-type: none"> 1. Pressure pad 2. Pickup roller and clutch assembly 3. LVPSA 4. DC control board

Table 6-6 (Cont.) Area 1 Jams

Possible Cause	Description and Action
Upper cassette pickup failure	<p>Remove the top cover and find the upper pickup clutch and solenoid at the end of the pickup roller shaft. Perform test feeds and observe the operation of the pickup roller and clutch.</p> <ol style="list-style-type: none">1. Perform the following steps if the pickup roller turns but does not fully feed paper:<ol style="list-style-type: none">a. Inspect the surface of the pickup roller. If you find any dirt or contamination, replace the pickup roller assembly. Do not disassemble or clean the assembly.b. Swap the pickup roller and clutch assembly.c. Swap the LVPSA.d. Swap the dc control board.2. If the gears that drive the clutch do not turn after Test/Font is pressed, inspect the condition of and swap the following components.<ol style="list-style-type: none">a. DC control boardb. Transfer drive assemblyc. Intermediate gear assemblyd. Main motor assemblye. LVPSAf. Pickup roller and clutch assembly
Lower cassette pickup failure	<p>Remove the duplex gear side panel and find the lower pickup clutch and solenoid at the end of the pickup roller shaft.</p> <ol style="list-style-type: none">1. Perform the following steps if the lower pickup roller turns but does not pick up or fails to push the paper fully into the registration rollers:<ol style="list-style-type: none">a. Inspect the surface of the pickup roller. If you find any dirt or contamination, replace the pickup roller assembly. Do not disassemble or clean the assembly.b. Make sure the lower pickup roller solenoid connector is fully plugged into the wire harness.c. Swap the pickup roller and clutch. Do not attempt to disassemble the clutch.d. Swap the dc control board.2. If the gears that drive the clutch do not turn after Test/Font is pressed, do the following:<ol style="list-style-type: none">a. Make sure the duplex motor connector is plugged into the wire harness.b. Swap the duplex motor.c. Swap the dc control board.
Paper jammed under the registration rollers	Registration roller jams are covered in area 2. Go to Section 6.7.4.

6.7.4 Area 2 Jams

FIP NOTES

Section 6.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

For a valid area 2 jam condition to exist, the jam must occur between the entrances of the registration and fixing unit rollers. If you determine that the paper never reached the registration rollers, return to Section 6.7.3. If the leading edge advances through the fixing unit rollers, turn to Section 6.7.5.

Area 2 Timing and Events

The following sequence of events occurs in area 2:

1. The registration rollers start, grasp the leading edge, and pull the sheet through the registration rollers.
2. The sheet is pushed across the transfer and static eliminator charge wires. The action of the transfer charger leaves a strong residual charge on the sheet. The residual charge can cause separation failure or the sheet tends to stick to the OPC drum or parts of the EP-S cartridge. The static eliminator discharges the residual charge, allowing the sheet to separate from the OPC drum.
3. After separation, the sheet is pushed by the registration rollers and directed by the feed guide roller into and across the feed guide assembly.
4. The feed guide assembly directs the leading edge into the entrance guide of the fixing unit.
5. The fixing unit entrance guides the leading edge into the nip of the heat and pressure rollers of the fixing unit. The fixing unit rollers grasp the leading edge, and the sheet is pulled into the fixing unit.

Table 6-7 Area 2 Jams

Registration roller
failure

The following symptoms are typical of registration roller malfunctions:

- A malfunction of the registration roller clutch or solenoid is indicated if the leading edge is pushed into, but does not go under, the nip of the registration rollers.
- Registration roller surface contamination by grease or bearing malfunction is indicated when the sheet is crumpled and noticeably skewed to one side of the registration rollers.
- A malfunction of the main motor or drive gears is indicated when the paper stops in the middle of the area 2 paper path. The sheet is laying flat, not out of alignment, and the lines of the printer image appear to be compressed.

Perform the following steps to correct a registration roller failure:

1. Check the main motor connector, labeled J3 on the LVPSA.
2. Swap the transfer drive assembly.
3. Swap the LVPSA.
4. Swap the dc control board.
5. Swap the main motor.

Table 6-7 (Cont.) Area 2 Jams

Paper path
obstruction
or separation failure

The registration rollers tend to push the sheet into an accordion fold when the sheet collides with some object in the paper path.

Perform the following steps to remove the obstruction or fix the separation problem:

1. Remove the EP-S cartridge and inspect it for damage.
 - a. There should be no toner leakage. Some toner can escape and become deposited on the exterior of the case during normal operation or if many jams have been cleared. Clean up any toner, using the special vacuum or a clean, damp cloth.
 - b. Briefly flip open the OPC drum shutter. It should move smoothly, open fully, and shut automatically when released. Make sure the hinges and operation levers are undamaged.
 - c. The EP-S cartridge case should be free of splits, cracks, or impact damage.
2. Swap the EP-S cartridge.
3. Examine the high-voltage spring contacts that connect from the HVPSA connector block to the transfer charge assembly. Replace the HVPSA if the contacts are burnt, pitted, or mangled.
4. Swap the transfer corona assembly.
5. Swap the HVPSA.
6. Swap the dc control board.

Jams occur in
fixing unit

Replace the fixing unit.

6.7.5 Area 3 Jams

FIP NOTES

Section 6.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

An area 3 jam involves the fixing unit, fork gate, entrance guides, and output rollers. The paper must first enter and exit the fixing unit. When the paper exits the fixing unit, the fork gate directs the paper up to the output rollers or to the inverter or faceup stack. The output rollers push the sheet into the facedown stack.

When the top cover closes the following three drive gears are meshed:

- A lever on the fixing unit is pressed, which meshes the fixing unit driven gear into the drive gear of the main motor transmission.
- The exit assembly is first pushed by the top cover, then pulled closed by the two coil springs. When the exit assembly is fully closed, the exit roller drive gear meshes with the gear train in the fixing unit.
- The output rollers are driven by the output drive gears. When the top cover closes, the output drive gear assembly meshes with the drive gear on the top of the fixing unit.

Table 6–8 gives a possible cause, a description, and a course of action for you to take to fix a paper jamming problem in area 3.

Table 6–8 Area 3 Jams

Possible Cause	Description and Action
Leading edge does not reach the nip of the fixing rollers	Jam is an area 2 jam fault. Go to Section 6.7.4
Paper jams in the fixing unit	<p>There are two types of fixing unit jams:</p> <ul style="list-style-type: none">• The sheet of paper is pushed fully into the nip, but the fixing rollers fail to turn and grasp the leading edge.• The sheet collides with an obstruction in the fixing unit, or the exit rollers or stripper fingers fail. <p>Perform the following steps to repair either problem:</p> <ol style="list-style-type: none">1. Remove and thoroughly inspect the fixing unit. Clean out any shreds of paper, and if you find any damage, install a new fixing unit. Make sure the exit assembly closes fully.2. Swap the fixing unit.3. Swap the main motor assembly.

Table 6-8 (Cont.) Area 3 Jams

Possible Cause	Description and Action
Paper is misdirected by or collides with the fork gate	<p>The fork gate is actuated manually by the printout selector shaft, or automatically by the inverter solenoid.</p> <p>Perform the following steps to repair the problem:</p> <ol style="list-style-type: none">1. Disassemble the inverter covers enough to observe the operation of the linkages that operate the fork gate. Repair or replace the inverter unit.2. Make sure the two inverter connectors are fully plugged in. The connectors are mounted on the duplex bulkhead in the rear of the duplex unit.3. Swap the inverter unit.4. Swap the dc control board.
Jams occur at the entrance to the output rollers	<p>Open the top cover and examine the entrance guide and fixing unit hold-down plate. Replace any parts that show signs of damage, obstruction, or contamination.</p>
Output rollers	<p>Perform the following steps if the output rollers do not turn or cause jams:</p> <ol style="list-style-type: none">1. Closely inspect and manually turn the output rollers. Replace any components that are damaged, badly worn, or not functioning.2. Swap the fixing unit if the last step shows that the output rollers and drive gears function correctly.3. Swap the output roller assembly.

6.7.6 Area 4 Jams

FIP NOTES

Section 6.7.1, Jam Troubleshooting Start FIP, is the step that precedes this step.

The area 4 paper path goes through the inverter and duplex units. Table 6-9 describes inverter jam faults and Table 6-10 covers the duplex unit paper path.

Area 4, Inverter Path Timing and Events

The following sequence of events occurs in the inverter unit:

1. When the dc control board detects the leading edge at the fixing unit exit sensor, the inverter solenoid energizes, turning the fork gate to the up position.
2. As the sheet is pushed out of the fixing unit exit, the fork gate directs it into the input paper path of the inverter unit.
3. The inverter drive unit starts driving the inverter drive belt and rollers.
4. The exit rollers of the fixing unit push the leading edge into the nip of the moving inverter rollers.
5. The inverter rollers grasp and pull the leading half of the sheet partially out of the printer.
6. When the inverter rollers pull the trailing edge past the inverter sensor tag, the direction of the sheet is reversed by the inverter drive unit and rollers.
7. The inverter rollers push the paper down the inverter output guide into the alignment guide.

Table 6-9 provides information for fixing jam faults in the inverter unit.

Table 6-9 Area 4 Inverter Path Jams

Possible Cause	Description and Action
Paper jams in the fixing unit	Go to Section 6.7.5 if you determine that the jam is caused by the fixing unit.
The paper is misdirected into the output paper path or collides with the fork gate	<p>The fork gate is actuated manually by the printout selector shaft, or automatically by the inverter solenoid. Perform the following steps to repair the problem:</p> <ol style="list-style-type: none">1. Make sure the duplex indicator is on. If not, press Duplex to select the duplex print mode.2. Remove enough of the inverter covers to observe the operation of the linkages that operate the fork gate. Repair or replace the inverter unit.3. Make sure the two inverter connectors are fully plugged in. You must open the top cover to see the connectors, which are mounted on the duplex unit bulkhead in the rear of the duplex unit.4. Swap the inverter unit.5. Swap the dc control board.

Table 6–9 (Cont.) Area 4 Inverter Path Jams

Possible Cause	Description and Action
The inverter roller does not turn	<p>The fixing unit rollers push and fold the paper into the nip of the inverter rollers. Perform the following steps to fix the problem:</p> <ol style="list-style-type: none">1. Check the connector of the inverter drive unit.2. Check the tension of the inverter and duplex drive belts.3. Swap the inverter drive unit.4. Swap the alignment drive.5. Swap the duplex unit motor assembly.6. Swap the dc control board.
Inverter roller fails to pull trailing edge past the sensor tag	<p>The inverter rollers grab the paper but cannot move the paper enough. Perform the following steps to fix the problem:</p> <ol style="list-style-type: none">1. Inspect the following inverter unit components. If you find any damage, replace the inverter unit.<ol style="list-style-type: none">a. Check the inverter pressure rollers.b. Check the pressure plate and springs.2. Check the tension of the inverter and duplex drive belts.3. Swap the inverter roller or the inverter unit.4. Swap the duplex unit motor assembly.5. Swap the dc control board.
Inverter rollers do not reverse	<p>The inverter rollers pull the paper past the sensor tag but do not reverse direction to push the paper into the duplex unit. Perform the following steps to fix the problem:</p> <ol style="list-style-type: none">1. Swap the inverter sensor.2. Swap the inverter drive.3. Swap the dc control board.
Accordion jam occurs in the inverter exit	<p>Paper collided with the mispositioned alignment guide or the inverter paper guide panel. Perform the following steps to fix the problem:</p> <ol style="list-style-type: none">1. Make sure all four screws are installed in the inverter paper guide panel.2. Remove the inverter paper guide panel and check for damage or obstruction.3. Go to the mispositioned alignment guide plate entry in Table 6–10.

Area 4, Duplex Unit Timing and Events

The following sequence of events occurs in the paper path of the alignment guide and second pass rollers:

1. The alignment guide plate repositioning cycle is initiated during the first feed after the printer is powered up or the paper size is changed. In the repositioning cycle, the alignment cam completes a full revolution and sends the home position signal to the dc control board. You can see the alignment plate move fully out, and then move to the set position.
2. The inverter roller pushes the paper into the alignment guide and between the alignment rollers. The alignment pressure roller is retracted.
3. The alignment pressure roller drops when approximately 1% of the paper is under the alignment rollers.
4. The alignment rollers force the paper into the alignment guide and drive the paper into the tag of the second pass sensor.
5. The dc control board delays energizing the second pass solenoid until the paper path is clear.
6. When the second pass solenoid is energized, the second pass rollers push the paper up and into the nip of the registration rollers.
7. The registration and second pass rollers together feed the sheet out of the duplex unit.

Table 6–10 provides information needed to fix jam faults in the alignment and second pass components of the duplex unit.

Table 6–10 Area 4 Duplex Unit Jams

Possible Cause	Description and Action
Mispositioned alignment guide plate	<p>This problem can cause jams or second side image positioning problems. Check the image defect tables. If the 56 SERVICE message is displayed, check the alignment drive connector before replacing the alignment drive unit.</p> <ol style="list-style-type: none">1. Open the side access cover, lift the duplex pressure plate, and examine the alignment plate and cam. Fix or replace any damaged components.2. If the cam and plate are not correctly engaged, remove and replace the alignment drive unit.3. Swap the alignment drive unit.4. Swap the dc control board.

Table 6–10 (Cont.) Area 4 Duplex Unit Jams

Possible Cause	Description and Action
Alignment rollers do not work	<p>The inverter roller pushes the sheet under the drive rollers but the sheet fails to reach the second pass sensor.</p> <ol style="list-style-type: none">1. Inspect the following, and fix or replace any defective components.<ol style="list-style-type: none">a. Make sure the alignment and second pass pressure plates close completely.b. While feeding test sheets, watch the operation of the alignment pressure roller to see if the roller drops. If not, replace the alignment pressure plate and roller.2. Swap the dc control board.3. Swap the inverter drive unit.4. Swap the alignment roller.
Paper jams at or in the second pass rollers	<p>This symptom can be caused by a malfunctioning sensor or roller.</p> <ol style="list-style-type: none">1. Open the side access cover and examine the second pass sensor assembly and linkage. When you manually actuate the linkage, it should move freely and not bind.<p>Lift the second pass pressure plates and examine the condition of the second pass pressure and friction rollers. Make sure the pressure plate springs are attached. Fix or replace any damaged components.</p>2. Remove the duplex side gear cover to observe the operation of the second pass solenoid and clutch as the jam occurs.<ol style="list-style-type: none">a. Make sure the second pass roller solenoid is plugged in to the duplex wire harness.b. If the second pass drive gear never turns or is damaged, replace the duplex unit motor assembly.c. If the solenoid pawl fails to lift, replace the second pass solenoid.d. If the solenoid pawl lifts but the second pass roller shaft fails to turn, replace the second pass roller.3. Remove the sensor shield and check the sensor connector to see if the sensor is mounted correctly.4. Swap the second pass sensor assembly.5. Swap the dc control board.
Duplex motor speed problem	<p>The speed of the duplex unit motor assembly is governed by the encoded disk and sensor. If this system fails, the motor runs at a noticeably higher speed. The higher speed causes area 4 jams. Make sure the connector is properly plugged in. If the gears are chattering and speed seems high, swap the duplex unit motor assembly.</p>

6.8 TROUBLESHOOTING IMAGE DEFECTS

You must evaluate the quality of the printed image whenever you service the DEClaser 2200 printer. Obtain one or several copies of TEST PRINT B. Inspect the test prints for satisfactory print image quality.

Table 6-11 describes symptoms and gives a course of action for fixing the image defects.

Table 6-11 Image Defect Lookup Table

Symptom	Description and Action
Light printing	<p>The text and dark areas of the printed image are too light. Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. The transfer corona assembly2. The connectors of the HVPSA and EP-S cartridge3. The levers that actuate the drum sensitivity switches on the solenoid and sensor board4. The J214 connector to the dc control board <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. Scanner assembly4. LVPSA5. DC control board
Dark printing	<p>The printed text is too dark and heavy.</p> <p>Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. The connectors of the HVPSA and EP-S cartridge2. The levers that actuate the drum sensitivity switches on the solenoid and sensor board3. The J214 connector to the dc control board <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. Scanner assembly4. LVPSA5. DC control board

Table 6–11 (Cont.) Image Defect Lookup Table

Symptom	Description and Action
The sheet is completely blank	<p>The sheet is completely white; no toner is printed on the sheet.</p> <p>Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. If the EP-S cartridge was recently installed, check that the toner seal was completely removed.2. The EP-S drum light cover; it should completely retract.3. The actuation tag that operates the beam shutter lever of the scanner assembly should not be damaged.4. The HVPSA connections to the EP-S cartridge and transfer corona assembly.5. The J214 connector to the dc control board. <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. Transfer corona assembly4. Scanner assembly5. DC control board
Large blotchy white areas	<p>This symptom occurs when the OPC drum has been exposed to strong light, or if the toner in the EP-S cartridge is damp. Storing the EP-S cartridge in cold temperatures or high humidity causes toner to become damp.</p>
All black	<p>The entire image area is black. Inspect the following elements and replace if damaged:</p> <ol style="list-style-type: none">1. The connectors of the HVPSA and EP-S cartridge.2. The J214 connector to the dc control board. <p>Swap the following FRUs to correct the problem:</p> <ol style="list-style-type: none">1. EP-S cartridge2. HVPSA3. DC control board
In-line vertical spots	<p>Inspect the connection of the HVPSA and the static charge eliminator.</p> <p>Replace the HVPSA.</p>
Dirt (toner) on reverse side of paper	<p>Inspect the paper path for spilled toner. Thoroughly vacuum and clean the entire paper path, especially the following components:</p> <ol style="list-style-type: none">1. Cassette top2. Transfer guides3. Transfer charge wire4. Feed guide5. Fixing unit pressure roller <p>Replace the fixing unit cleaning pad.</p> <p>Inspect the EP-S cartridge for signs of leaking toner.</p>

Table 6-11 (Cont.) Image Defect Lookup Table

Symptom	Description and Action
Vertical black streaks	<p>The symptoms are caused by a dirty primary charge wire or by failure of the OPC drum or fixing unit. The streak may be visible on the OPC drum or fixing unit. Perform the following steps:</p> <ol style="list-style-type: none">1. Clean the primary charge wire in the EP-S cartridge.2. Swap the EP-S cartridge.3. Swap the fixing unit cleaning pad.4. Swap the cleaning unit.
Thin black horizontal streaks	<p>Swap the following FRUs:</p> <ol style="list-style-type: none">1. The EP-S cartridge2. The scanner assembly3. The dc control board
Black, irregular, and smudged vertical lines	<p>Perform the following steps:</p> <ol style="list-style-type: none">1. Clean the primary charge wire.2. Replace the EP-S cartridge.
Black, irregular, and smudged horizontal bands	<p>Swap the following FRUs:</p> <ol style="list-style-type: none">1. The EP-S cartridge2. The fixing unit cleaning pad or the fixing unit
Blank spots in dark areas	<p>The paper may be too moist. Try some dry paper from the center of a new package. Swap the following FRUs:</p> <ol style="list-style-type: none">1. The EP-S cartridge2. The HVPSA
Solid white vertical lines in dark areas	<p>This symptom can be caused by an obstruction in the path of the laser beam, or by dirt on the transfer charger. Perform the following steps:</p> <ol style="list-style-type: none">1. Remove the EP-S cartridge and agitate it in the recommended fashion.2. Clean the transfer wire.3. Use a soft brush to clean the mirror.4. Swap the EP-S cartridge.5. Swap the transfer charger assembly.
Bad leading edge registration	<p>The image is positioned back from the leading edge of the paper. Perform the following steps:</p> <ol style="list-style-type: none">1. The cassette may be overloaded with paper.2. If an incorrect type of paper is being used, try a common paper type.3. Inspect the metal parts of the pick-up roller clutch. If you find any signs of rust, damage, or distortion, replace the pickup roller assembly.4. Swap the LVPSA.5. Swap the dc control board.

Table 6–11 (Cont.) Image Defect Lookup Table

Symptom	Description and Action
Bad fixing or fusing	<p>The text or image can be brushed off or easily rubbed off. Perform the following steps:</p> <ol style="list-style-type: none">1. If an incorrect type of paper is being used, try a common paper type.2. Swap the fixing unit.3. Swap the dc control board.
Distortion	<p>The printed image is wavy. Perform the following steps:</p> <ol style="list-style-type: none">1. Swap the scanner assembly.2. Swap the dc control board.

UNIT 7

DEClaser 2100 REMOVAL/REPLACEMENT PROCEDURES

7.1 INTRODUCTION

This unit contains the removal and replacement procedures for the DEClaser 2100 FRUs. The unit is a lab unit and is extremely important in understanding the servicing of the printer. The student should perform all of the procedures to gain a better understanding of DEClaser 2100 maintenance. The procedures must be performed in the sequence provided. Included in this unit is the recommended spares list for the DEClaser 2100.

7.2 OBJECTIVES

Upon successful completion of Unit 7, the CSE should be able to:

1. Perform FRU removal and replacement procedures in the proper sequence.
2. Perform the necessary steps to verify printer operation.

7.3 REMOVAL AND REPLACEMENT PROCEDURES

This unit describes the recommended spares list (RSL), and contains the removal and replacement procedures for the DEClaser 2100 printer. A typical procedure lists numbered, detailed steps to remove a component from the printer. Unless otherwise noted, you reverse the procedure to replace the component. Also, any step in a procedure may refer you to another procedure.

The RSL describes the spares parts that are stocked for servicing the printer. If you need a part that is not on the RSL, consult the *DEClaser 2100/2200 Illustrated Parts Breakdown (EK-D2122-IP)* for the part number or order information.

7.4 RECOMMENDED SPARES LISTING (RSL)

Table 7-1 lists the recommended spares for the DEClaser 2100 printer.

Table 7-1 DEClaser 2100 RSL

Part Number	Description
29-28270-01 ¹	100/115-Vac, ac inlet assembly
29-28270-02 ¹	220/240-Vac, ac inlet assembly
29-28281-01 ¹	Main (FM1) fan (mounts on ac inlet assembly) <i>upper</i>
29-28271-01 ¹	Fan (FM2) <i>Lower</i>
29-28273-01 ¹	High-voltage power supply assembly (HVPSA)
29-28283-01	100/115-Vac fixing unit or assembly
29-28283-02	220/240-Vac fixing unit or assembly
29-28284-01	100/115-Vac low-voltage power supply assembly (LVPSA) with attached solenoid and sensor board
29-28284-02	220/240-Vac LVPSA with attached solenoid and sensor board
29-28274-01 ¹	Laser scanner assembly
29-28275-01 ¹	Input/output board
LN-XX-AC ¹	Toner supplies (EP-S) cartridge kit
29-28314-01 ¹	Miscellaneous screws kit
29-28282-01 ¹	Paper pressure assembly
29-28291-01 ¹	Pickup separation pad
29-28272-01 ¹	Ozone filter
29-28276-01 ¹	Preconditioning lamp assembly
29-28303-01	DEClaser 2100 control panel assembly
29-28285-01	DC control board
29-28304-01	Video control board
29-28277-01 ¹	Transfer corona assembly
29-28286-01	Transfer guide assembly
29-28287-01	Paper feed pickup roller assembly
29-28279-01 ¹	Main motor drive assembly
29-28278-01 ¹	Intermediate gear assembly

¹ This part is interchangeable. The same part number is used for the DEClaser 2100 and 2200 printers.

7-2 DEClaser 2100 REMOVAL AND REPLACEMENT PROCEDURES

Table 7-1 (Cont.) DEClaser 2100 RSL

Part Number	Description
29-28280-01 ¹	Main motor assembly
29-28301-01 ¹	Solenoid and sensor board
29-28299-01 ¹	Output roller paper delivery assembly
20-33113-01 ¹	1-Mbyte RAM card
20-32801-01 ¹	2-Mbyte RAM card
20-32802-01 ¹	3-Mbyte RAM card

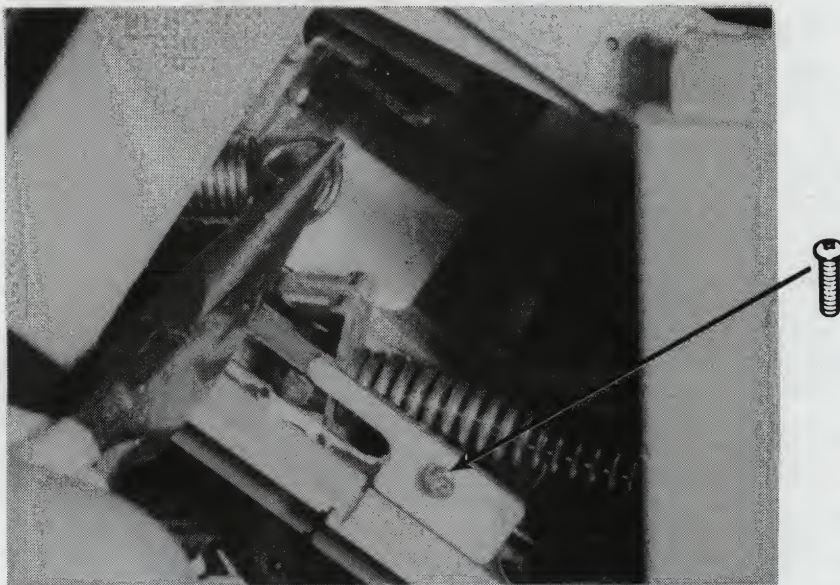
¹ This part is interchangeable. The same part number is used for the DEClaser 2100 and 2200 printers.

*Top roller assy
220/240v Vac fixing lamp
Output gear 7-25.1 (P.7-68)*

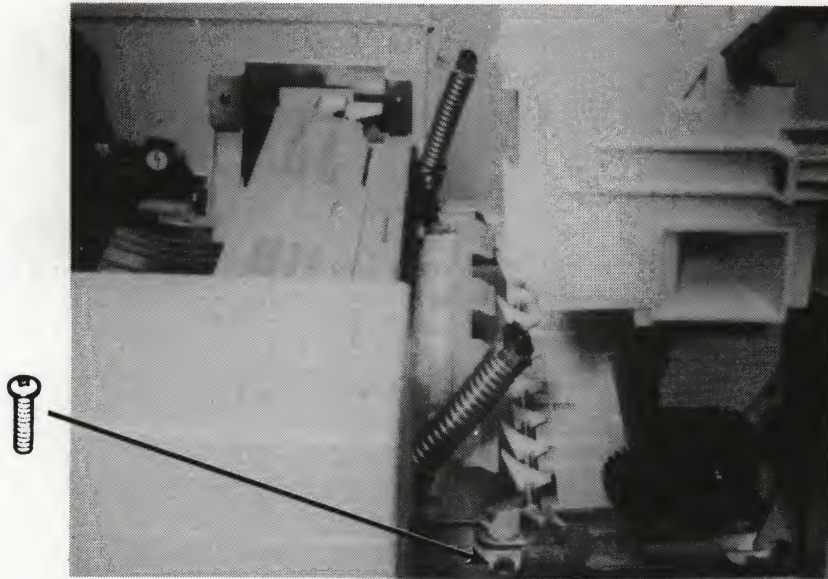
7.5 TOP COVER

Use the following procedure to remove and replace the top cover of the DEClaser 2100 printer:

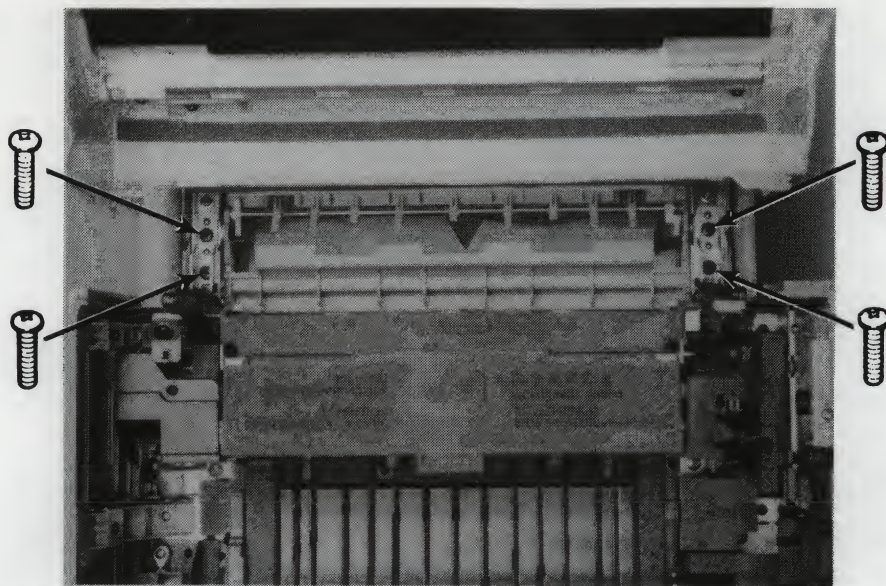
1. Open the top cover.
2. Remove the EP-S cartridge as shown in Section 7.9.
3. Disengage the upper spring from the bracket.
4. Remove the screw that holds the left guard plate and remove the guard plate.



5. Remove the screw that holds the right guard plate and remove the guard plate.
6. Disengage both springs from the slots.
7. Park both springs in the up position for access to the hinge screws.



8. Remove the four screws that hold the hinge to the top cover, then remove the cover.



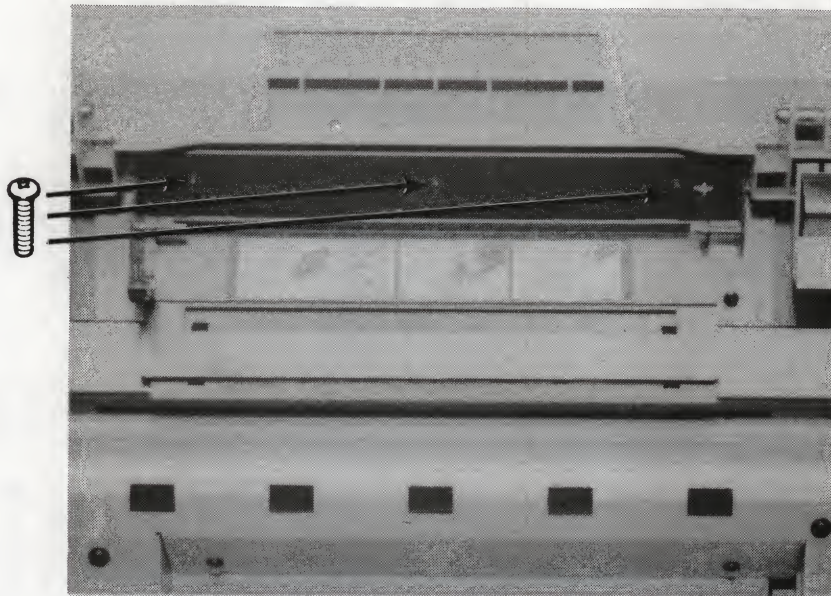
7.5.1 Top Cover Mirror

Use the following procedure to remove and replace the top cover mirror of the DEClaser 2100 printer:

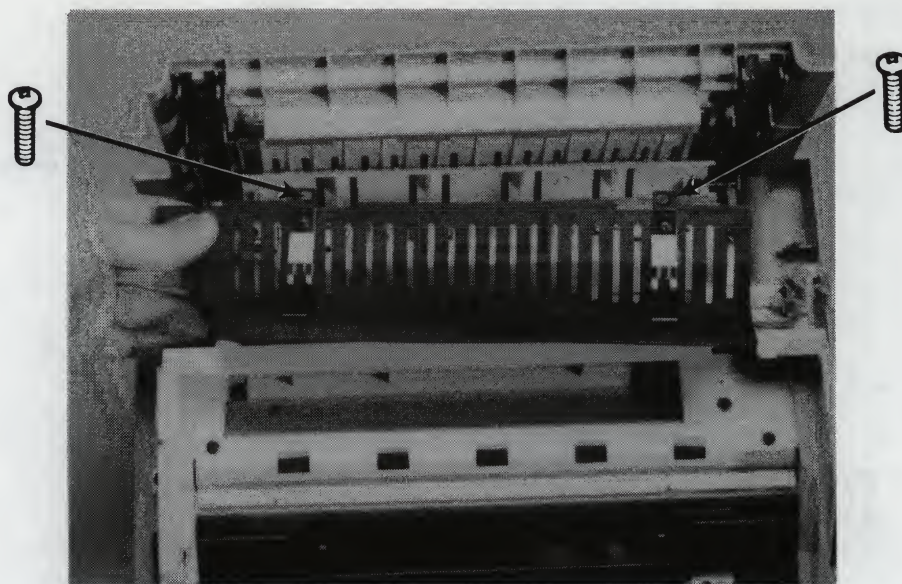
1. Remove the EP-S cartridge as shown in Section 7.9.
2. Remove the three screws that hold the shutter to the subframe.
3. Lift and remove the shutter.
4. Stop here if you intend to clean the mirror. Remove the mirror.

CAUTION

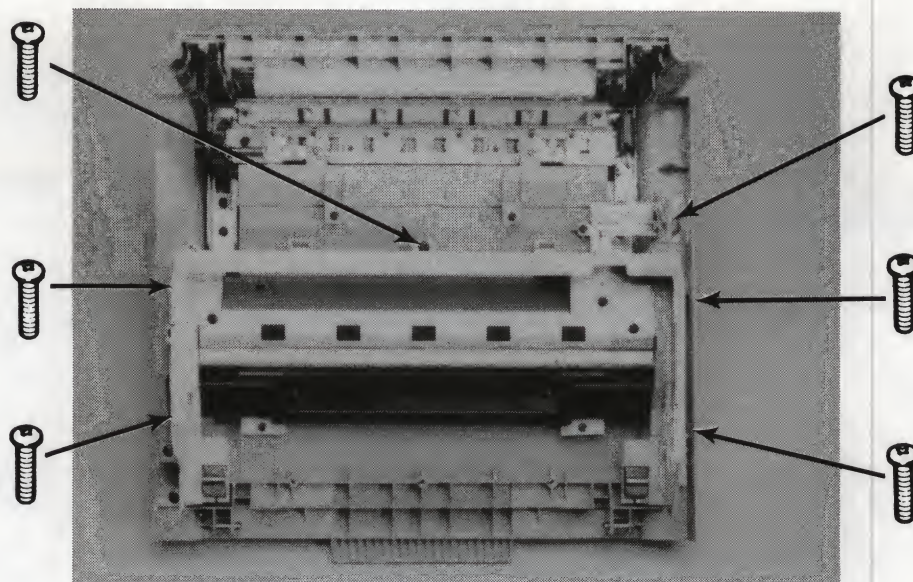
Be careful when handling the mirror. The surface of the mirror is sensitive and is easily scratched or damaged by dirt or finger oils.



5. Remove the top cover as shown in Section 7.5, and place it upside down on a work surface.
6. Remove the two screws from the fixing unit hold-down plate.
7. Remove the fixing unit hold-down plate.



8. Remove the six screws that hold the subframe to the top cover.

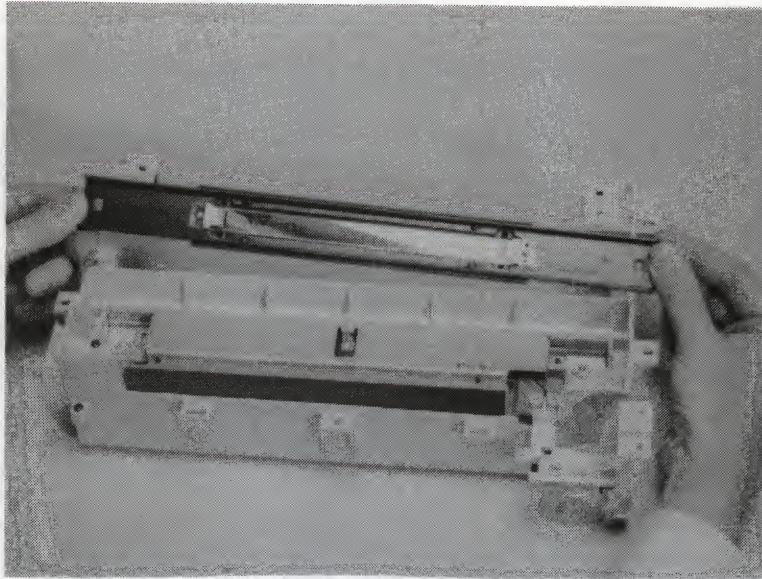


Hold the mirror to the subframe (as shown) while you lift and remove the subframe.



10. Place the subframe on a work surface, as shown below.
11. Remove the mirror from the guideposts.

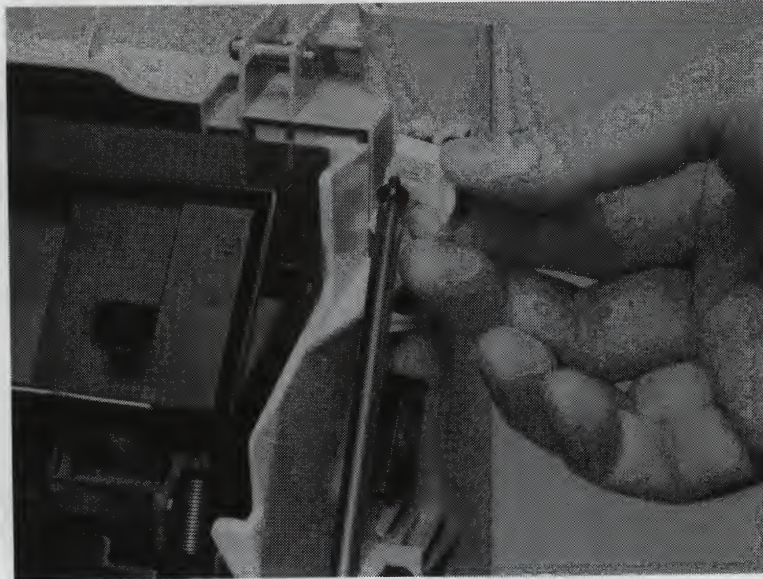
The mirror mounting holes and subframe posts are two different sizes. After you mount the mirror, make sure the mirror is free to move up and down on the subframe posts and site correctly.



7.5.2 Top Cover Switch Lever

Use the procedure below to remove and replace the switch lever that is mounted on the top cover. When the top cover is closed, the switch lever depresses the interlock switches.

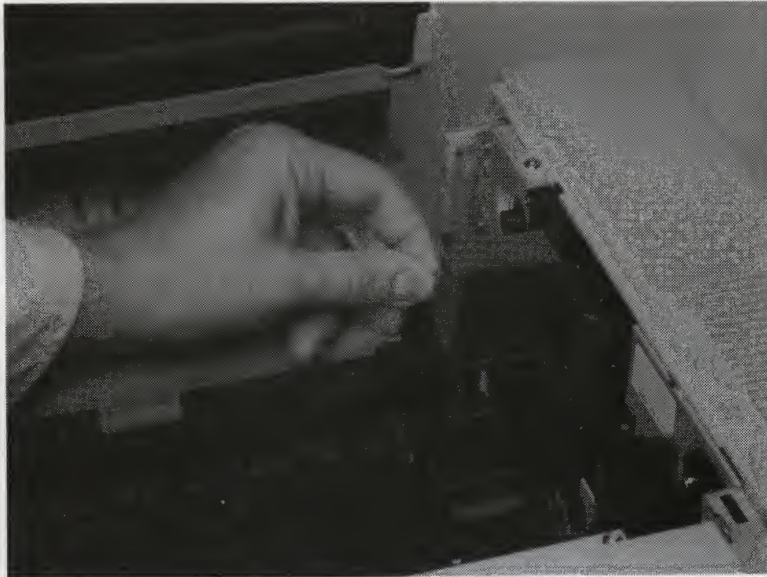
1. Open the top cover.
2. Remove the screw that holds the switch lever to the top cover, and remove the switch lever.



7.6 OZONE FILTER

Use the following procedure to remove and replace the ozone filter of the DEClaser 2100 printer:

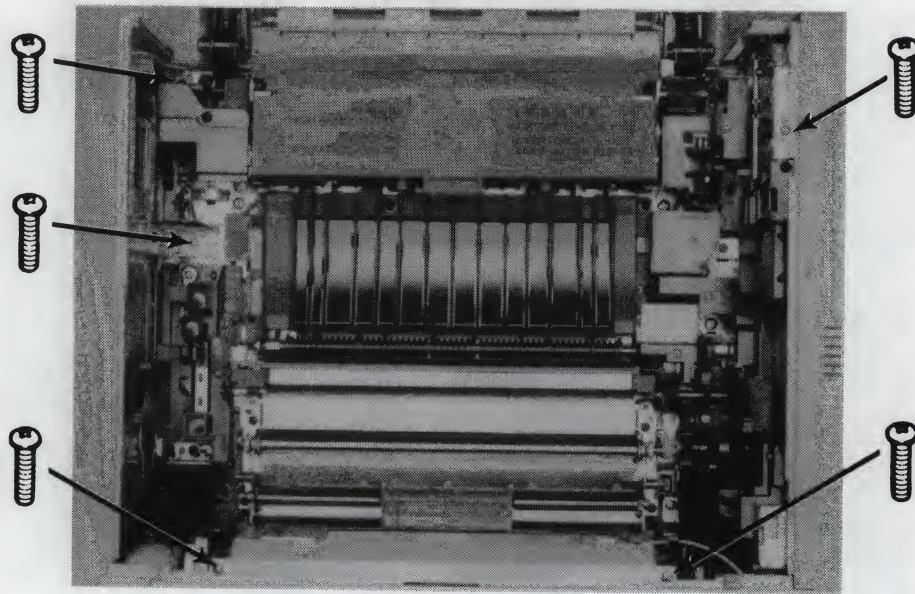
1. Open the top cover.
2. Use a fingernail to pry open the hatch.
3. Grasp the tab and pull out the ozone filter.



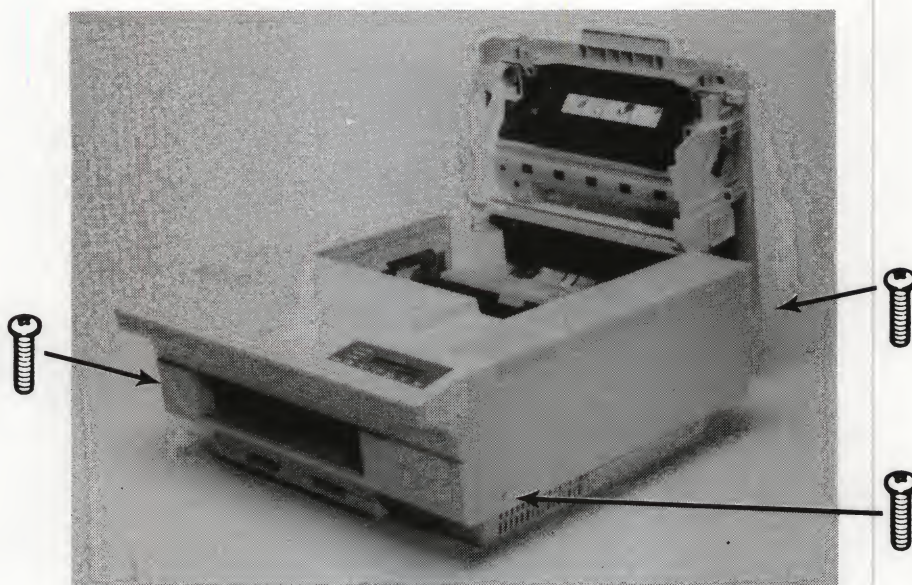
7.7 UPPER COVER

Use the following procedure to remove and replace the upper cover of the DEClaser 2100 printer:

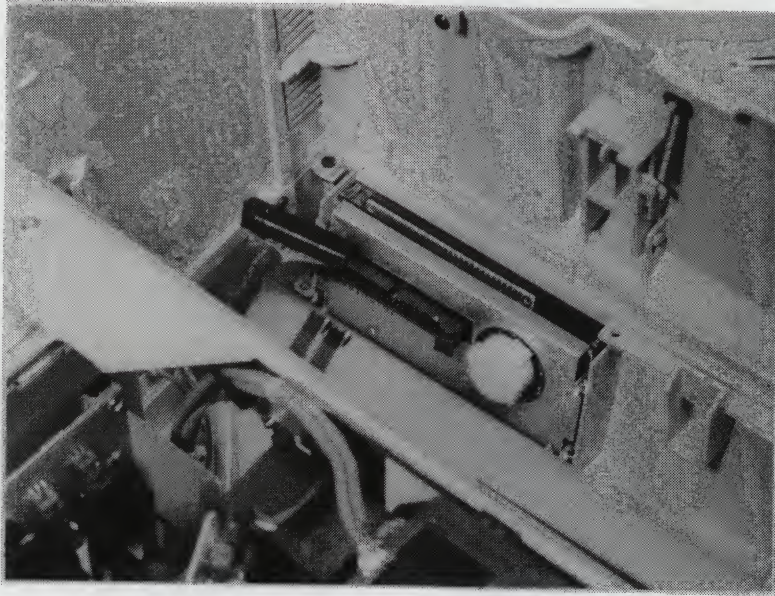
1. Open the top cover.
2. Remove the EP-S cartridge as shown in Section 7.9.
3. If a paper cassette is installed, remove it.
4. Remove the five screws as shown below.



5. Remove the two side screws.
6. Remove the single rear screw.



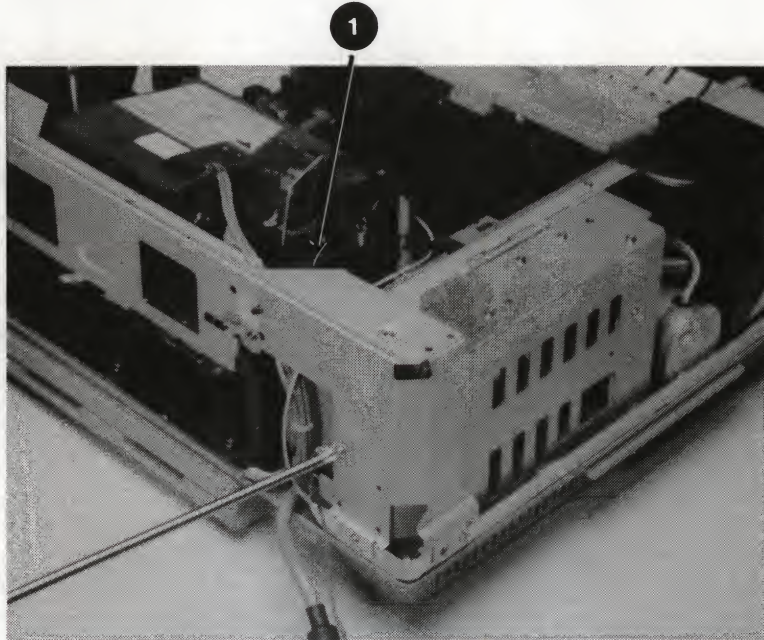
7. Partially withdraw the upper cover until the control panel connector is accessible.
8. Disconnect the control panel connector.
9. Remove the upper cover.



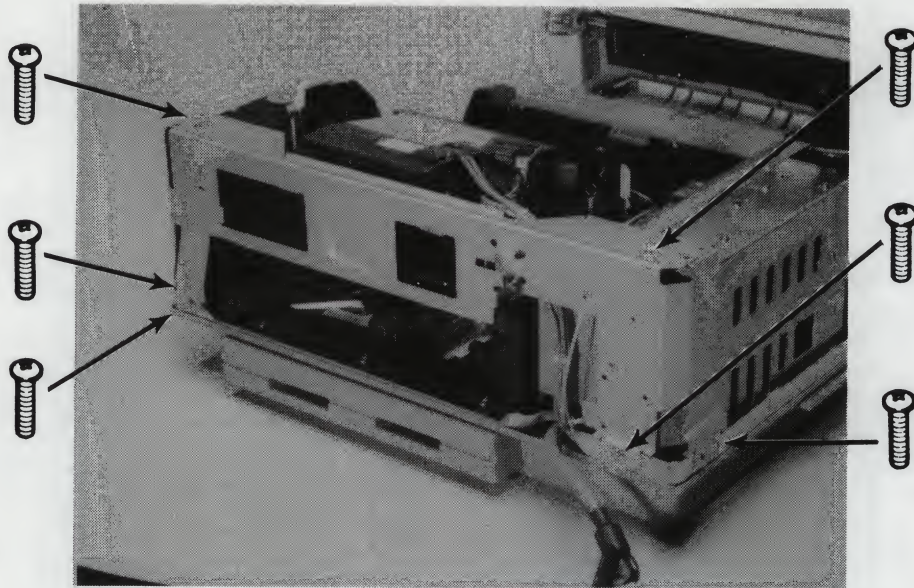
7.7.1 Front Subpanel

Use the following procedure to remove and replace the front subpanel of the DEClaser 2100 printer:

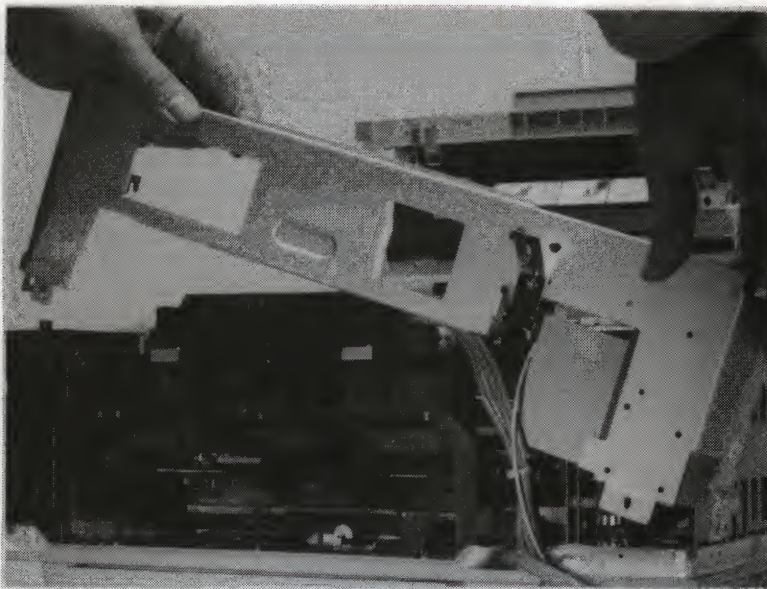
1. Remove the upper cover as shown in Section 7.7.
2. Remove the screw that holds the ground wire to the front subpanel.
3. Open the cable clamp ❶ and remove the cables.



4. Remove the three left-side screws.
5. Remove the three right-side screws.



6. Remove the front subpanel. When you replace the subpanel, make sure the electric and fiber optic cables are routed correctly.



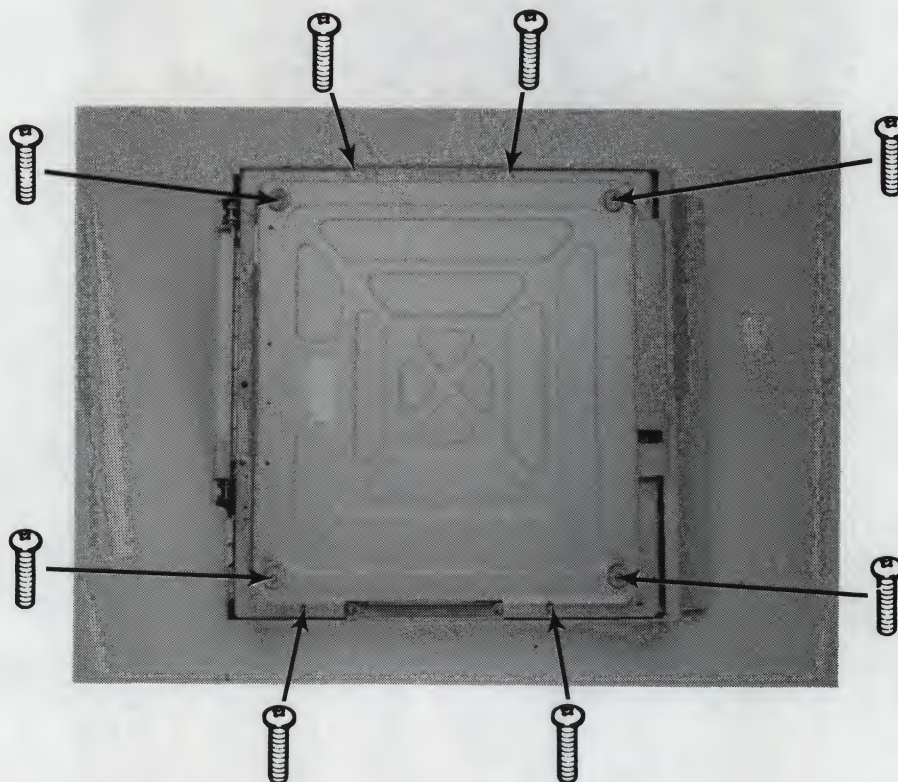
7.8 BOTTOM COVER

Use the following procedure to remove and replace the bottom cover of the DEClaser 2100 printer:

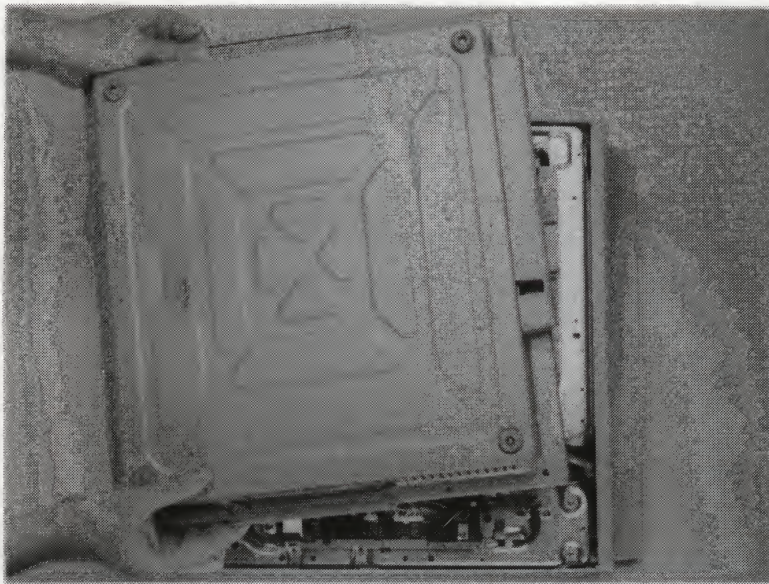
CAUTION

Do not attempt to operate the printer with the bottom cover removed.

1. Remove the paper cassette.
2. Remove the EP-S cartridge as shown in Section 7.9.
3. Remove any connectors from the serial or parallel port connectors.
4. If installed, remove the optional RAM expansion board as shown in Section 7.12.
5. Turn the printer upside down laying it on its top cover.
6. Remove the eight screws that hold the bottom cover.



7. Remove the bottom cover.



7.8.1 Font Cartridge Guides

Use the following procedure to remove and replace the font cartridge guides of the bottom cover of the DEClaser 2100 printer:

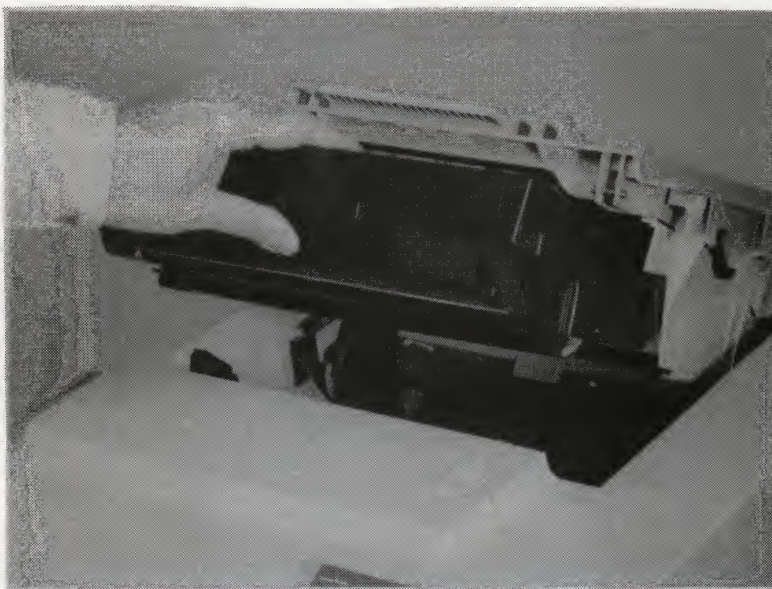
1. Remove the bottom cover as shown in Section 7.8.
2. Remove the four screws that hold the font cartridge guides to the bottom cover, and remove the font cartridge guide assembly.



7.9 EP-S CARTRIDGE

Use the following procedure to remove and replace the EP-S cartridge of the top cover of the DEClaser 2100 printer:

1. Open the top cover.
2. Remove the EP-S cartridge as shown. Do not stand the cartridge on either end or touch the OPC drum.



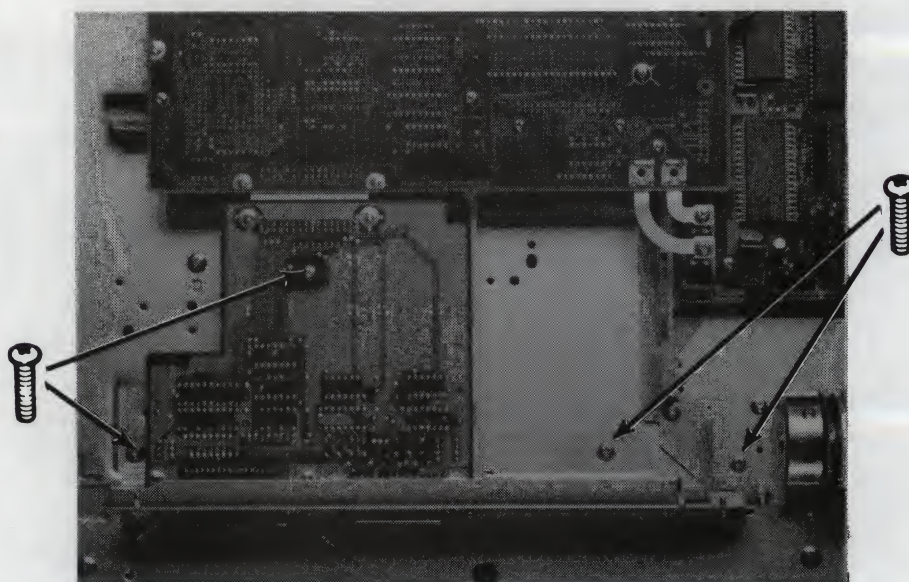
7.10 INPUT/OUTPUT (I/O) BOARD

Use the procedure below to remove and replace the I/O board of the DEClaser 2100 printer. The switchpack mounted on some I/O boards is not used in the field. The correct operational setting for both switches is open.

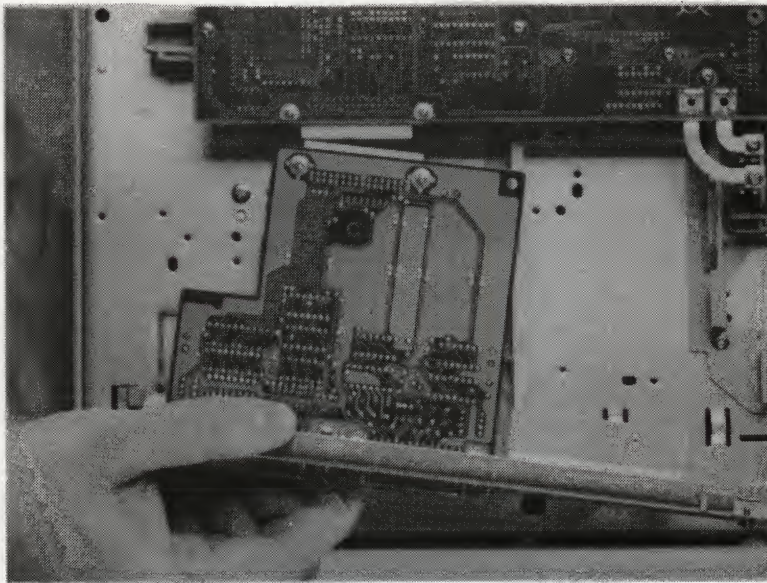
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the bottom cover as shown in Section 7.8.
2. Remove the four screws that hold the I/O board to the baseplate.



3. Disconnect the electrical connector to the video control board, and remove the I/O board.



7.11 VIDEO CONTROL BOARD

Use the following procedure to remove and replace the video control board of the DEClaser 2100 printer. The early versions of the video control board (as shown in this procedure) has a piggyback ROM memory. This memory board will be removed from future versions of the video control board. Both early and later versions are interchangeable.

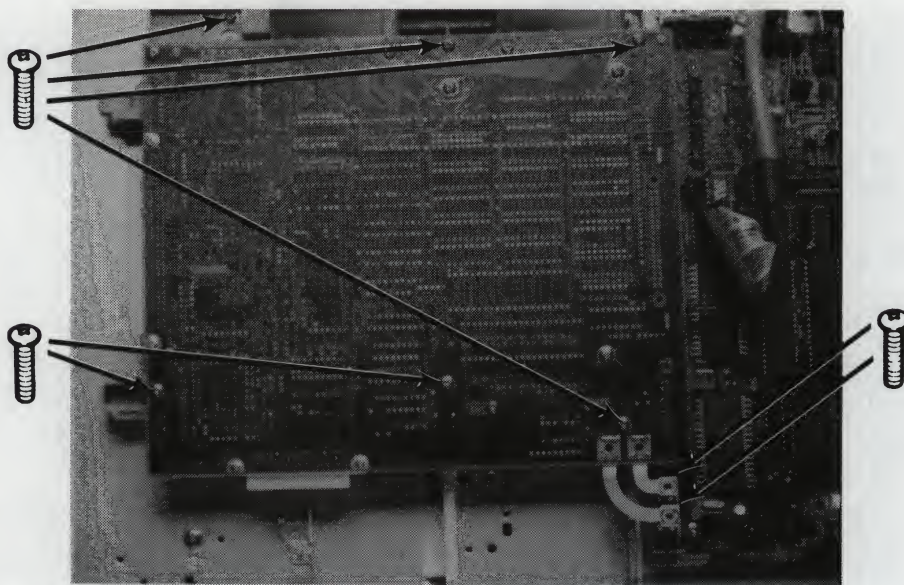
NOTE

When you replace a defective video control board, make sure to remove the page count integrated circuit (IC) from the defective board and install it on the new board. This action will preserve the page count information that is crucial for contract and accounting information.

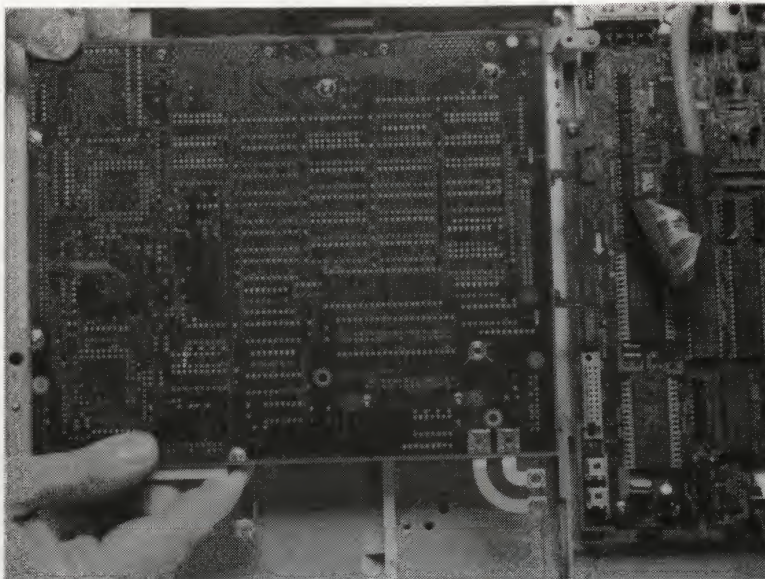
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the EP-S cartridge bottom cover as shown in Section 7.8.
2. Remove the I/O board as shown in Section 7.10.
3. Remove the two screws connecting the two power buses.
4. Disconnect the 34-pin control panel connector.
5. Remove the six screws that hold the video control board to the printer baseplate.



6. Lift the video control board off the alignment pins and remove the board.
7. If you are replacing the the video control board, swap the page count IC as shown in Section 7.11.1.



7.11.1 Page Count IC

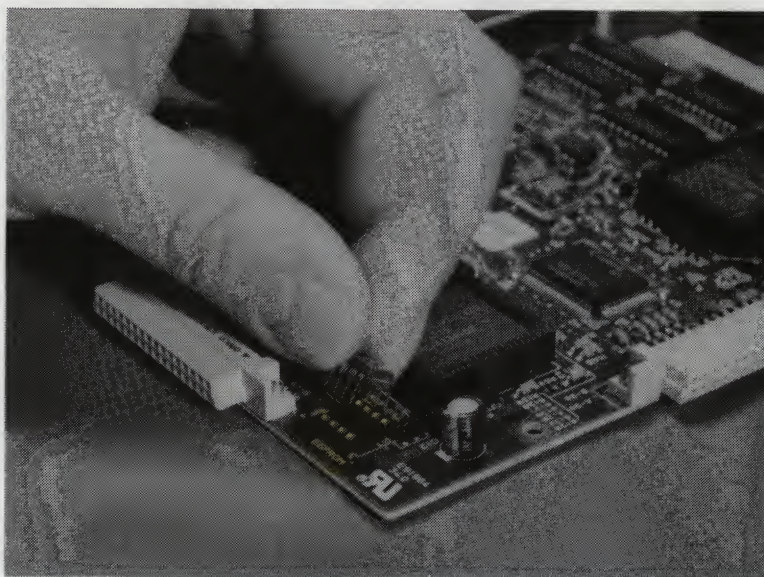
Page count information is stored in the page count memory integrated circuit (IC). The page count is the number of pages the printer has printed. When you replace a video control board, you must remove the page count IC from the defective video control board, and install it on the new video control board.

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

Use the following procedure to remove and replace the page count IC of the video control board of the DEClaser 2100 printer:

1. Remove the video control board as shown in Section 7.11.
2. Using a suitable tool, gently pry the page count IC loose from the socket.
3. Remove the page count IC.



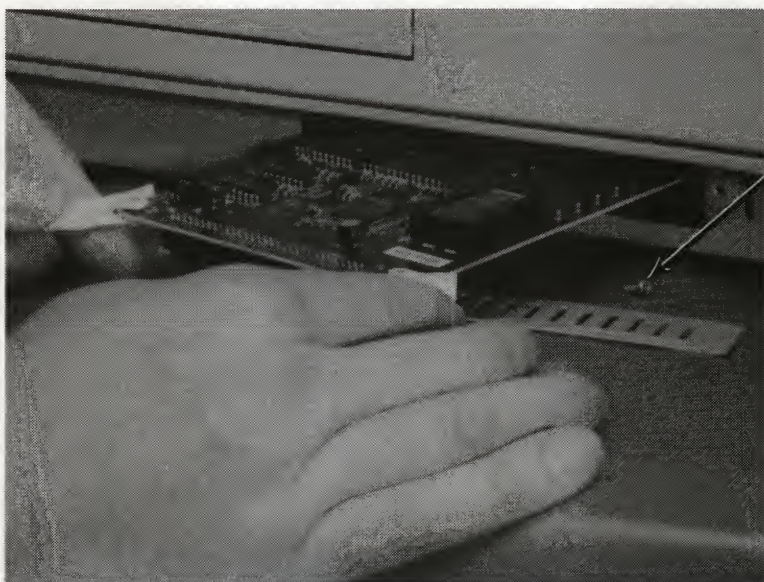
7.12 RAM EXPANSION BOARD

Use the following procedure to remove and replace the optional RAM expansion board of the DEClaser 2100 printer:

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

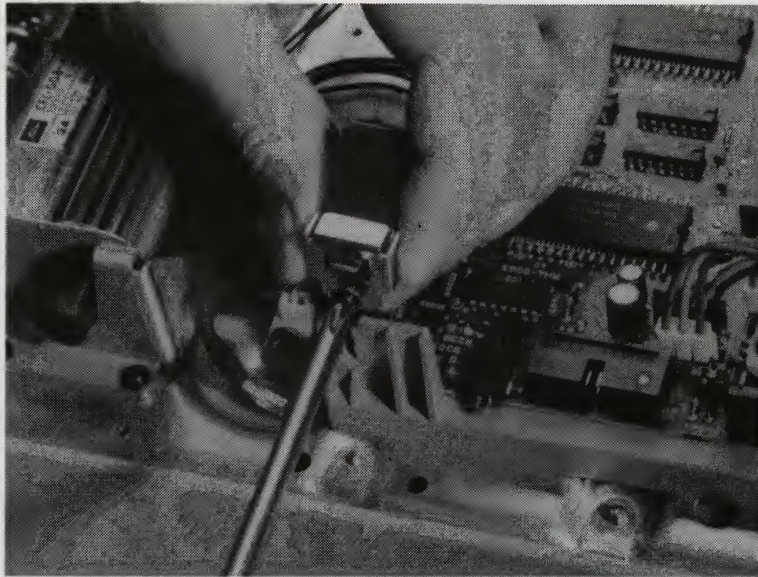
1. Remove the screw that holds the RAM board access cover to the bottom cover, and remove the panel.
2. Simultaneously lift the two handles, and remove the RAM board.



7.13 DC CONTROL BOARD

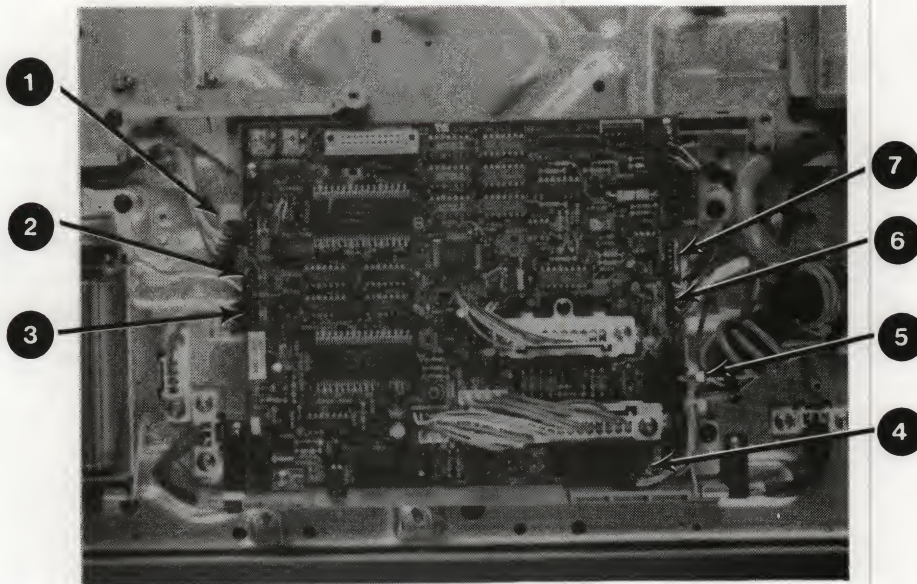
Use the following procedure to remove and replace the dc control board of the DEClaser 2100 printer:

1. Remove the EP-S cartridge bottom cover as shown in Section 7.8.
2. Remove the I/O board as shown in Section 7.10
3. Remove the video control board as shown in Section 7.11.
4. Loosen the screw that holds the interlock lever assembly.
5. Remove the interlock lever assembly.

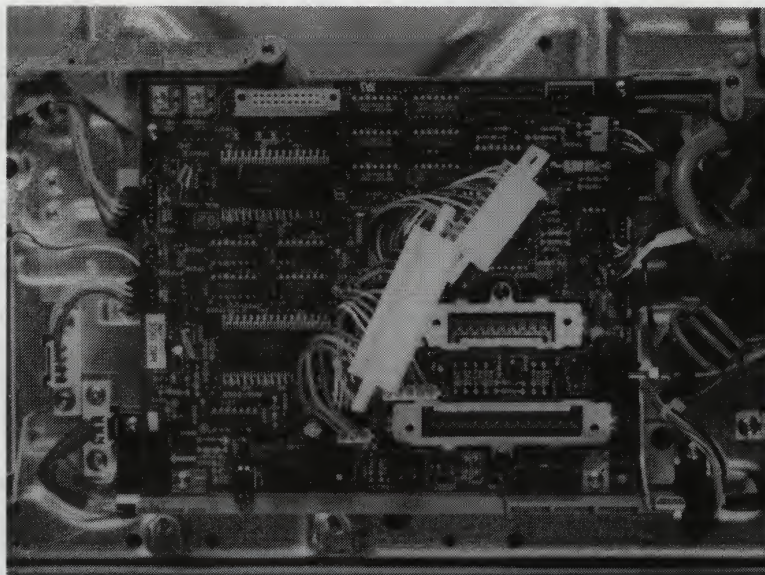


6. Remove the following connectors:

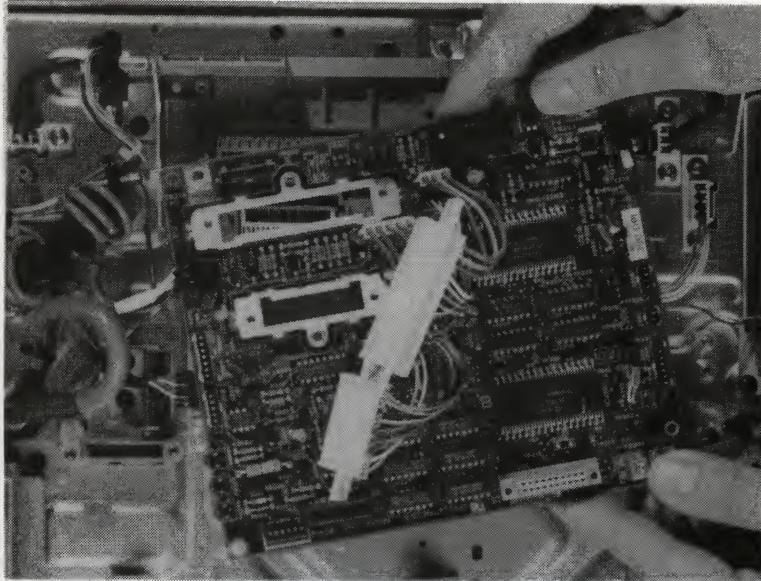
- ① 7-pin J606
- ② 2-pin J207 FM2
- ③ 4-pin J208
- ④ 8-pin J211
- ⑤ Fiber-optic J201
- ⑥ 7-pin J203
- ⑦ 5-pin J202



7. Remove the four shoulder screws that hold connectors J212 and J213 to the dc control board.
8. Unplug J212 and J213 from the dc control board.



9. Remove the six screws that hold the dc control board to the baseplate.
10. Lift the dc control board off the alignment pins and remove the board.



7.14 CONTROL PANEL

Use the following procedure to remove and replace the control panel of the DEClaser 2100 printer:

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the upper cover as shown in Section 7.7.
2. Push each of the four plastic tabs in turn while you push the control panel out through the front of the upper cover.



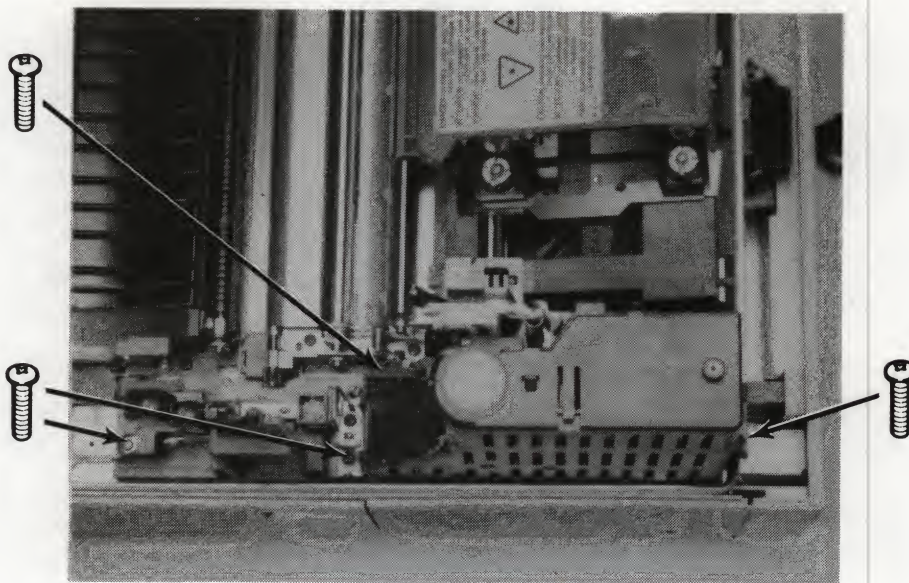
7.15 HIGH-VOLTAGE POWER SUPPLY ASSEMBLY (HVPSA)

Use the following procedure to remove and replace the high voltage power supply of the DEClaser 2100 printer:

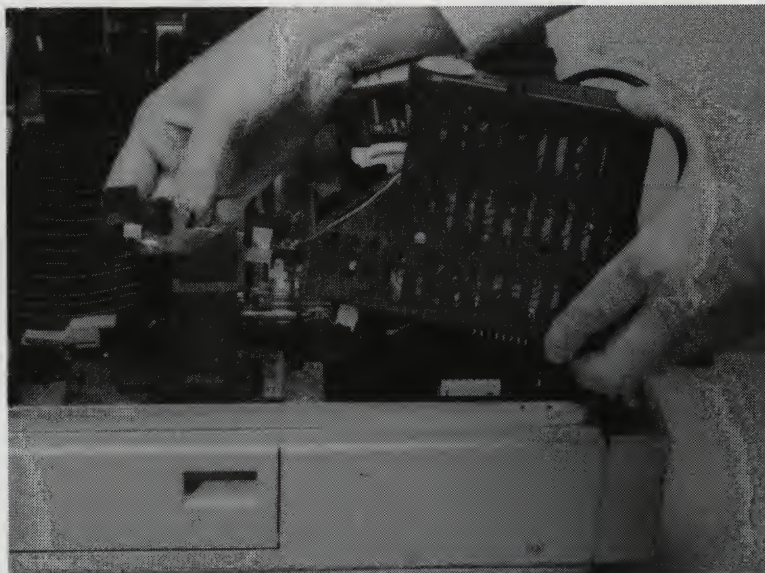
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the upper cover as shown in Section 7.7.
2. Remove the front subpanel as shown in Section 7.7.1.
3. Remove the four screws that hold the HVPSA to the baseplate.



4. Lift, unplug, and remove the HVPSA and connector block from the baseplate. When replacing the HVPSA, make sure it sits squarely on the alignment pins and on the baseplate of the printer.



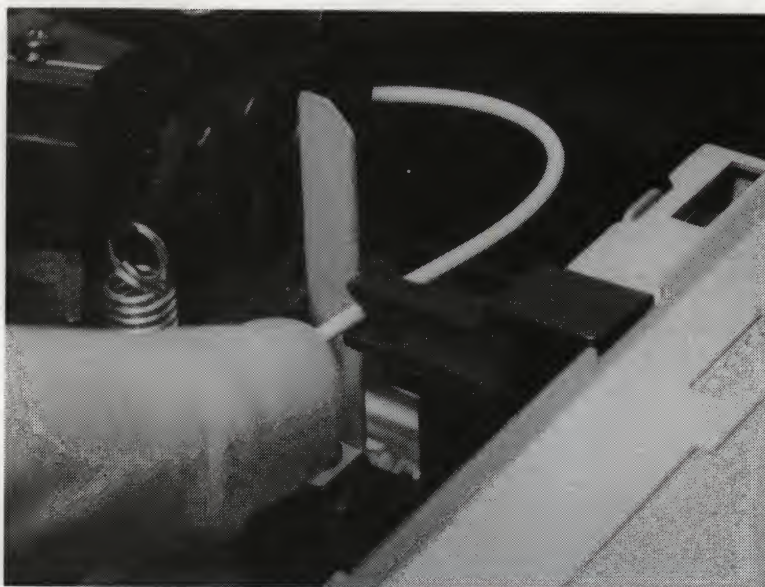
7.16 LOW-VOLTAGE POWER SUPPLY ASSEMBLY (LVPSA)

Use the following procedure to remove and replace the low-voltage power supply assembly (LVPSA) of the DEClaser 2100 printer:

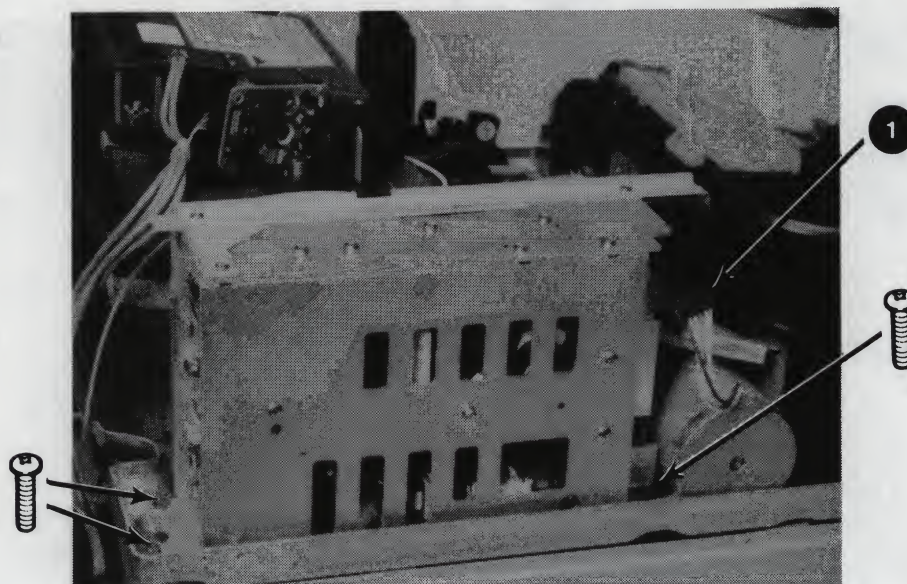
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

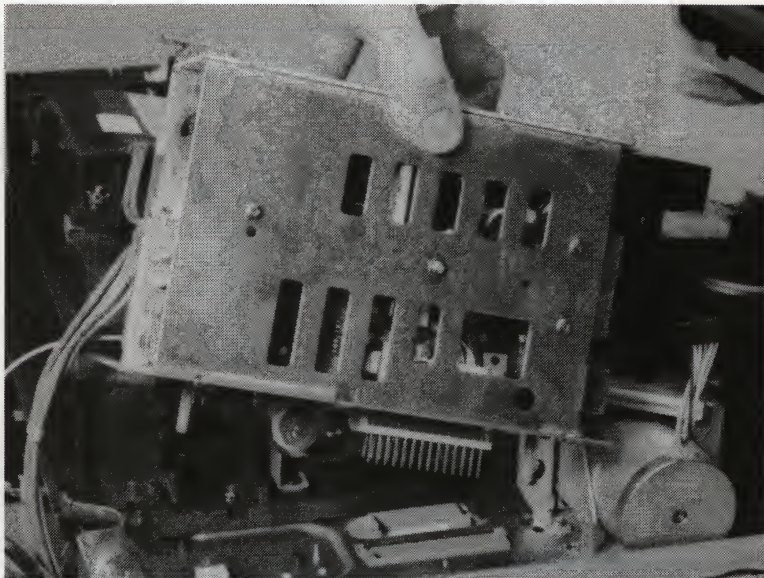
1. Remove the upper cover as shown in Section 7.7.
2. Remove the front subpanel as shown in Section 7.7.1.
3. Remove the fiber optic cable from the restraining clamp.



4. Unplug the main motor cable J3 connector ①.
5. Remove the three screws that hold the LVPSA to the printer baseplate.



6. Lift, unplug, remove the LVPSA from the baseplate.
7. Remove the solenoid and sensor board as shown in Section 7.16.1.



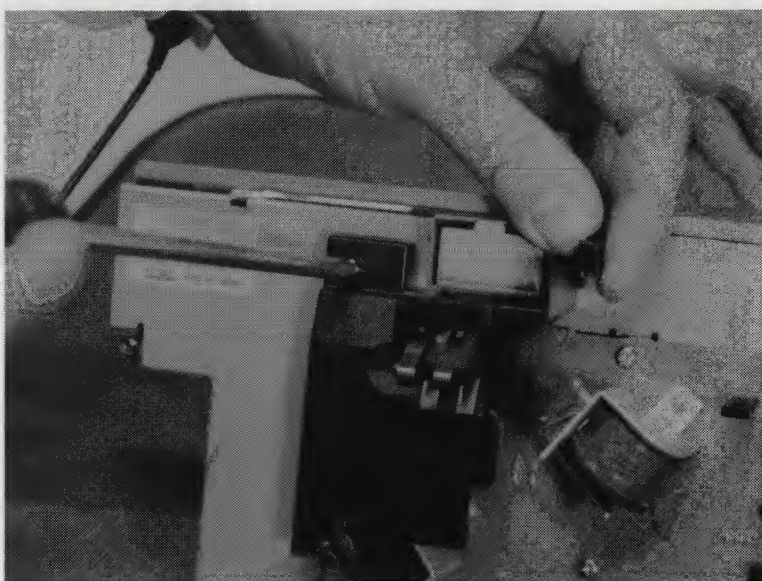
7.16.1 Solenoid and Sensor Board

Use the following procedure to remove and replace the solenoid and sensor board of the LVPSA of the DEClaser 2100 printer:

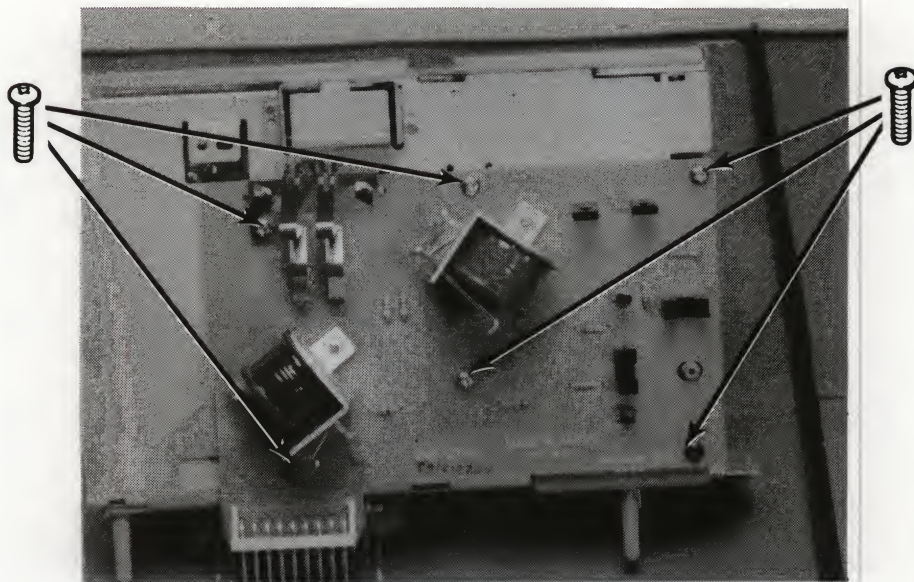
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

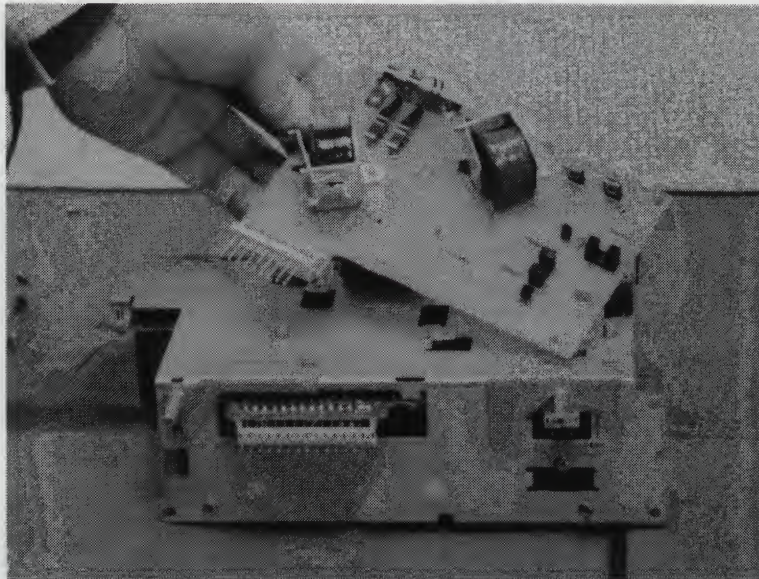
1. Remove the LVPSA as shown in Section 7.16.
2. Remove the screw that holds the plastic shield to the LVPSA bulkhead.
3. Remove the plastic shield.



4. Remove the six screws that hold the board to the LVPSA.



5. Remove the solenoid and sensor board.



7.17 SCANNER ASSEMBLY

Use the following procedure to remove and replace the scanner assembly of the DEClaser printer:

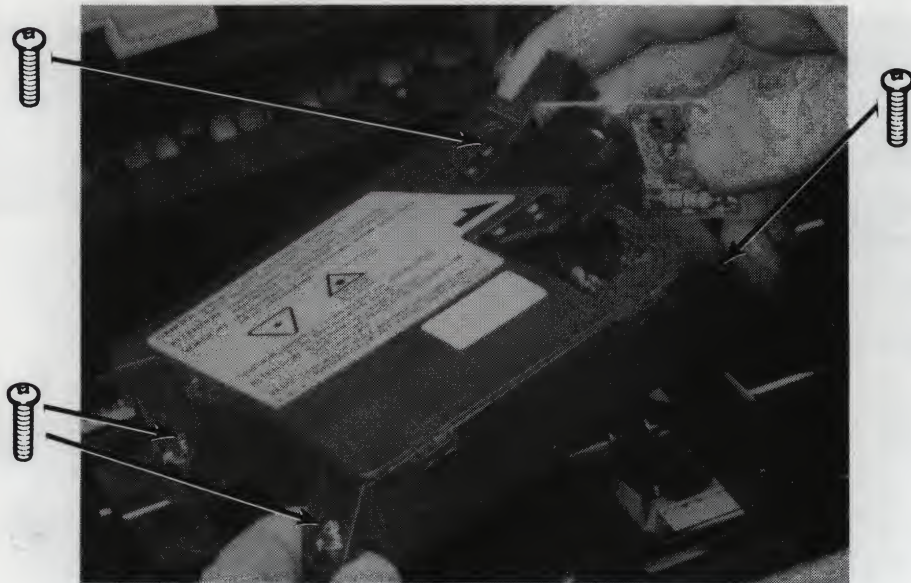
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the upper cover as shown in Section 7.7.
2. Do the following:
 - ① Remove the screw and open the access hatch. Remove the fiber optic light cable as shown below.
 - ② Open the access hatch and unplug the 5-pin J401 connector.
 - ③ Unplug the 4-pin J451 connector.



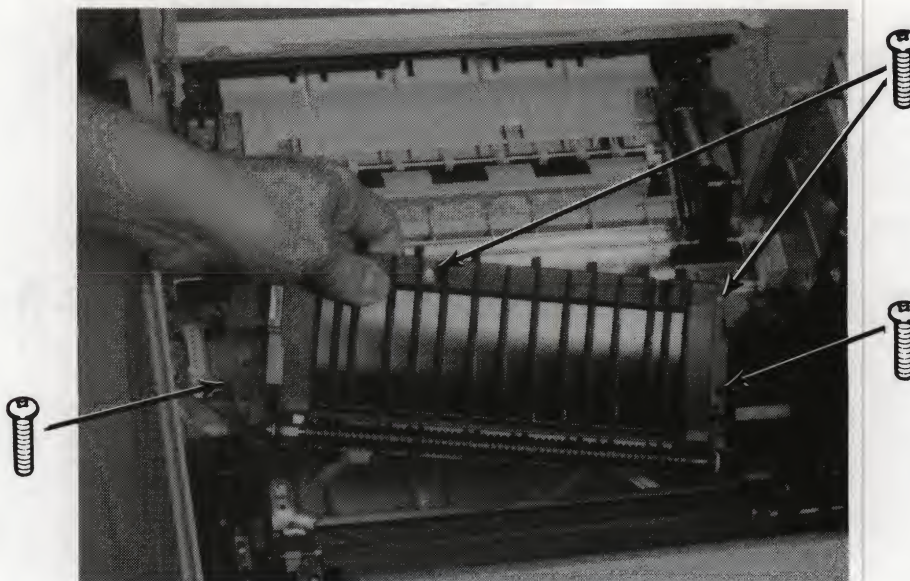
3. Remove the four mounting screws.
4. Remove the scanner assembly.



7.18 FEED GUIDE ASSEMBLY

Use the following procedure to remove and replace the feed guide assembly of the DEClaser 2100 printer:

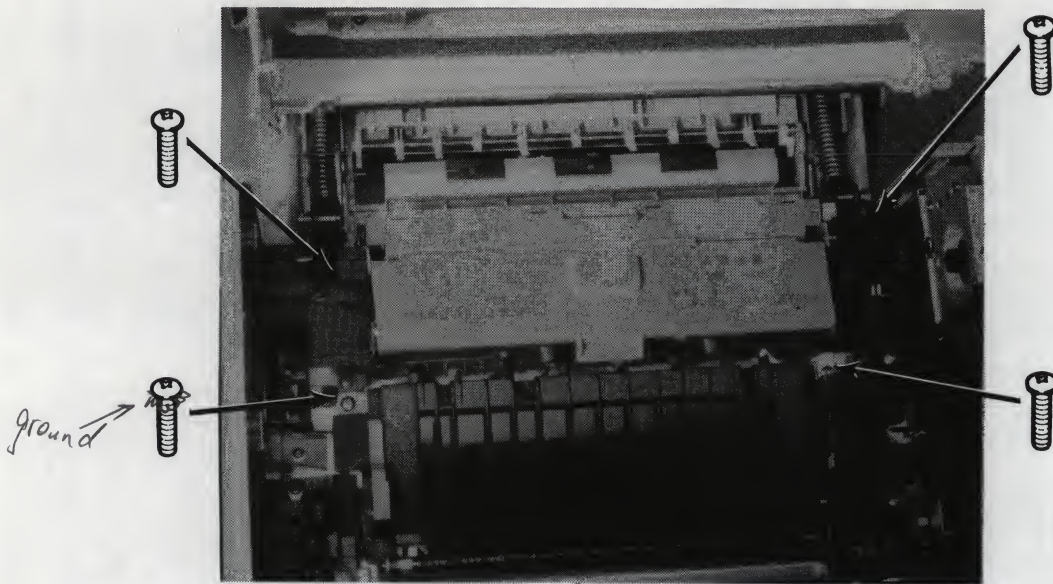
1. Open the top cover.
2. Remove the fixing unit as shown in Section 7.19.
3. Remove the four screws that hold the chassis assembly to the baseplate.
4. Remove the feed guide assembly.



7.19 FIXING UNIT

Use the following procedure to remove and replace the fixing unit of the baseplate of the DEClaser 2100 printer:

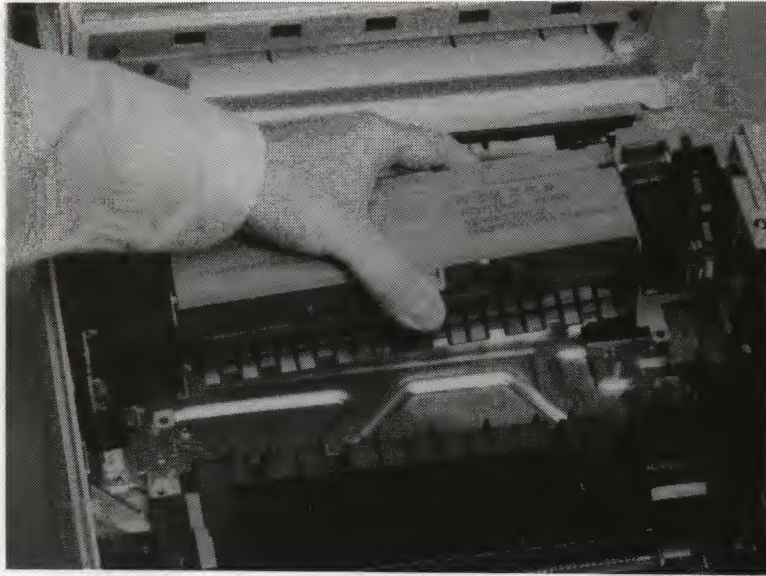
1. Open the top cover.
2. Remove the four screws that hold the fixing unit to the baseplate.



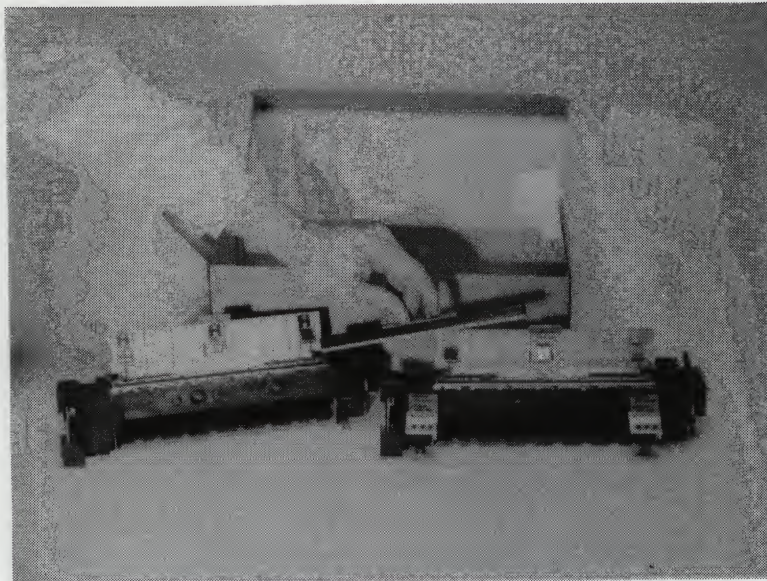
WARNING

The fixing unit is hot and can cause minor skin burns. Be careful when you handle or touch the fixing unit.

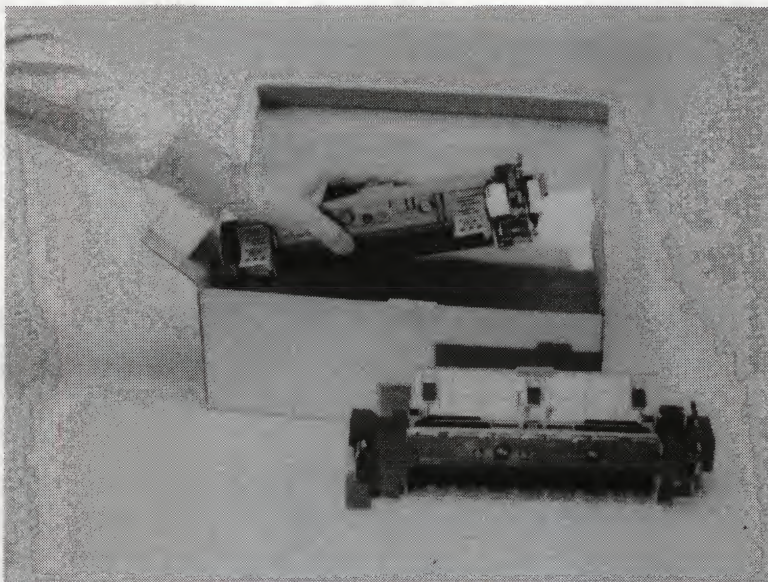
3. Lift, unplug, and remove the fixing unit as shown below. Place the fixing unit on a work surface.



4. Remove the new spare fixing unit from the special shipping container. Place the new unit next to the defective unit on the work surface.
5. Remove the cleaning pad from the defective fixing unit and install the pad in the new spare replacement.



6. Remove the roller separation wedges from the new spare fixing unit and install them in the old, defective fixing unit.
7. Place the defective fixing unit in the special shipping container.

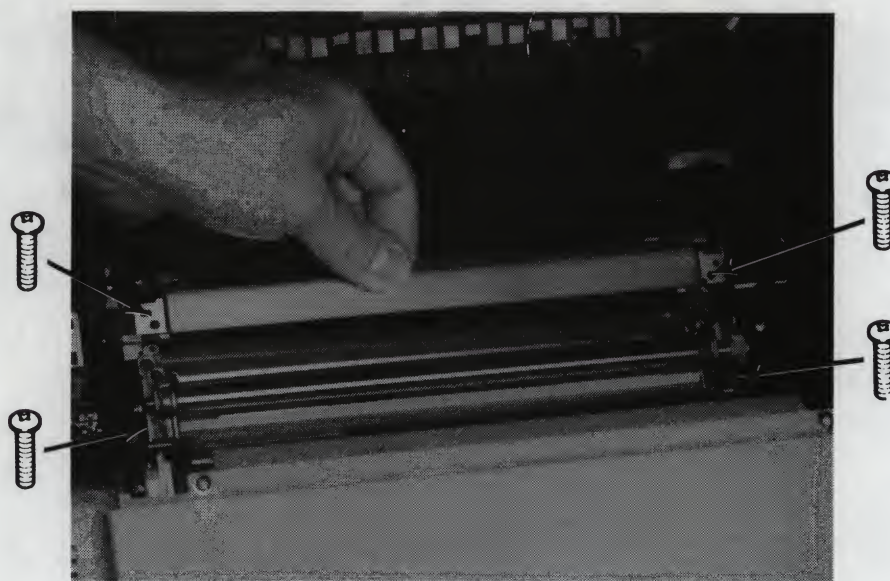


7.20 TRANSFER DRIVE ASSEMBLY

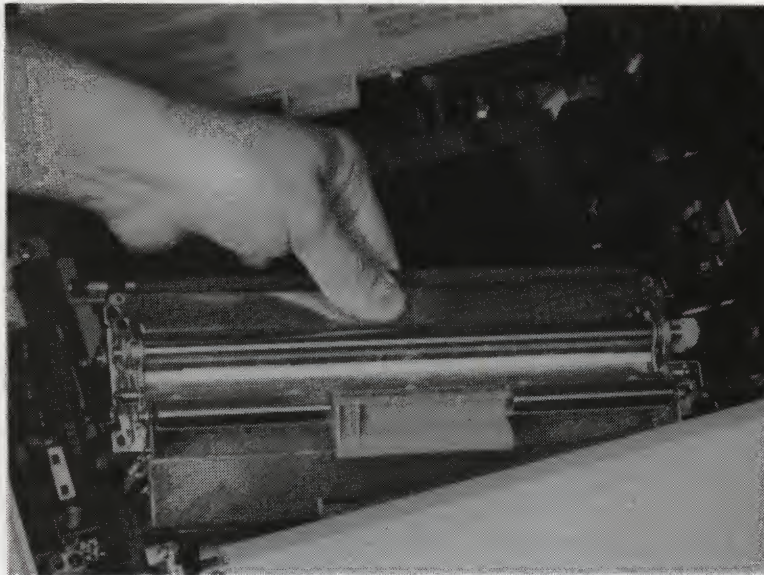
The transfer drive assembly consists of the registration rollers, the feed path between the pickup and registration rollers, and the pickup separation pad.

Use the following procedure to remove and replace the transfer drive assembly of the DEClaser 2100 printer:

1. Open the top cover.
2. Remove the cassette (if installed).
3. Remove the four screws that hold the transfer drive assembly to the chassis.
4. Remove the guide plate.



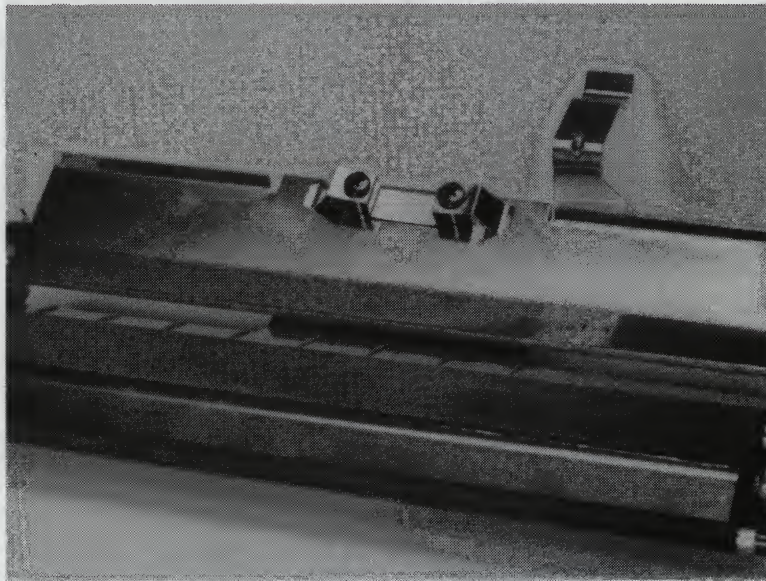
5. Lift and jog the assembly to carefully disengage the registration clutch and solenoid pawl, and then remove the transfer guide assembly.
6. If the spare transfer assembly has no pickup separation pad, swap the pickup separation pad from the defective unit as shown in Section 7.20.1.



7.20.1 Separation Pad

Use the following procedure to remove and replace the pickup separation pad of the transfer assembly of the DEClaser 2100 printer:

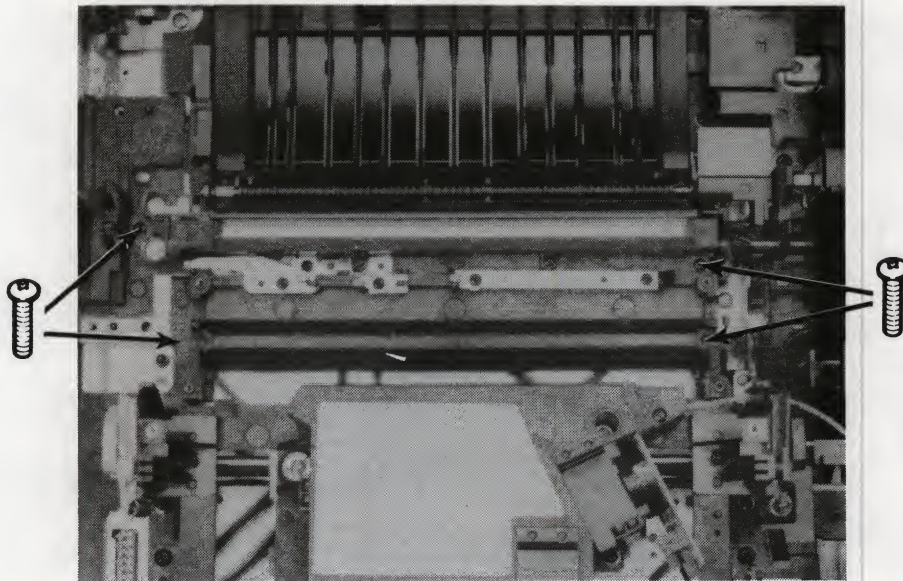
1. Remove the transfer drive assembly as shown in Section 7.20. Place the assembly upside down on a work surface.
2. Remove the two screws that hold the spring to the pad posts, and remove the pad assembly.



7.21 TRANSFER CORONA ASSEMBLY

Use the following procedure to remove and replace the transfer corona assembly of the DEClaser 2100 printer:

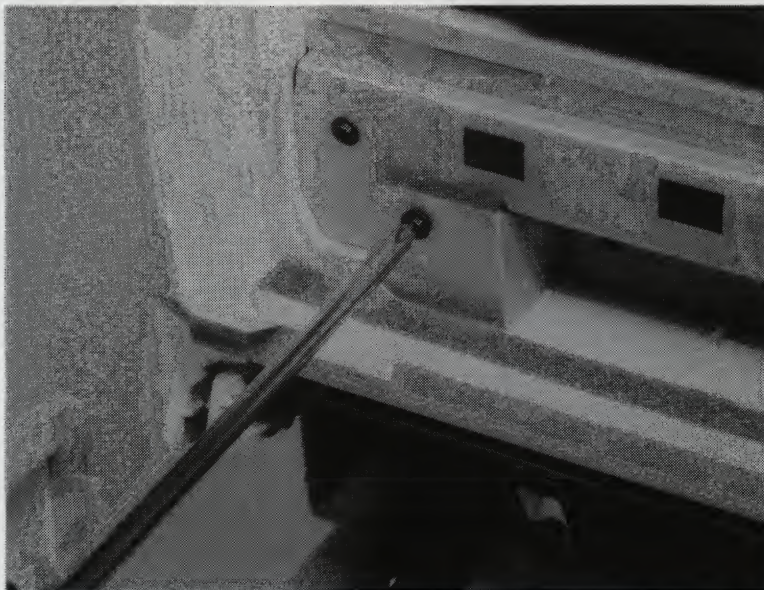
1. Remove the transfer drive assembly as shown in Section 7.20.
2. Remove the upper cover and front subpanel as shown in Section 7.7.1.
3. Remove the HVPSA as shown in Section 7.15.
4. Remove the two screws that hold the transfer corona assembly to the chassis.
5. Remove the transfer corona assembly.



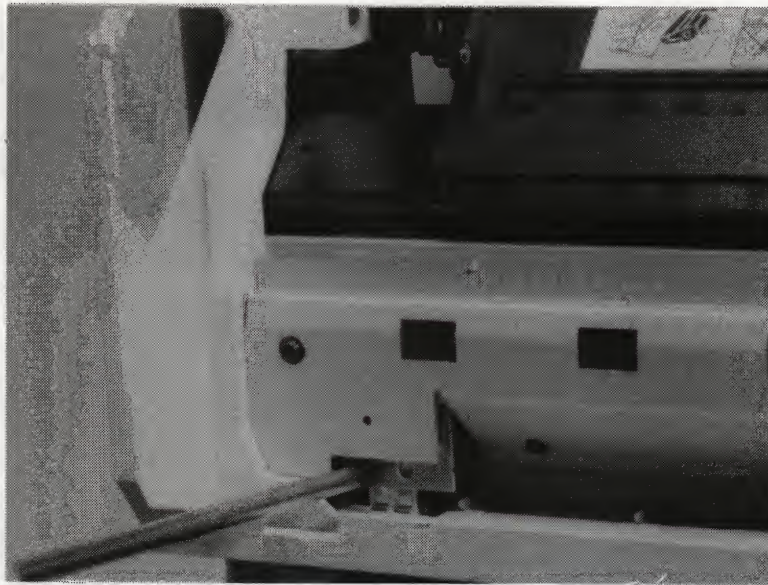
7.22 PRECONDITIONING LAMP

Use the following procedure to remove and replace the preconditioning lamp assembly of the upper unit of the DEClaser 2100 printer.

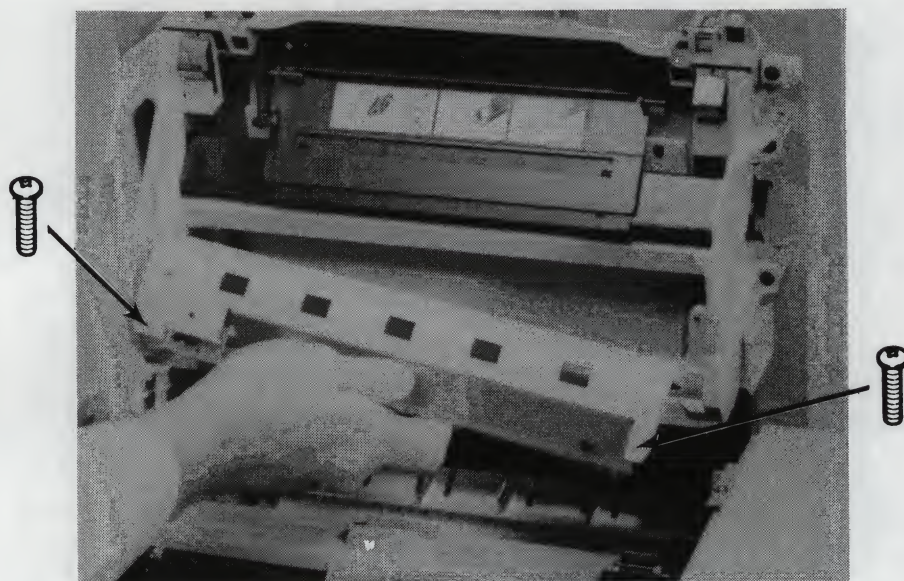
1. Open the top cover.
2. Remove the EP-S cartridge as shown in Section 7.9.
3. Remove the screw and the protective flange.



4. Remove the two screws that connect the power bus.



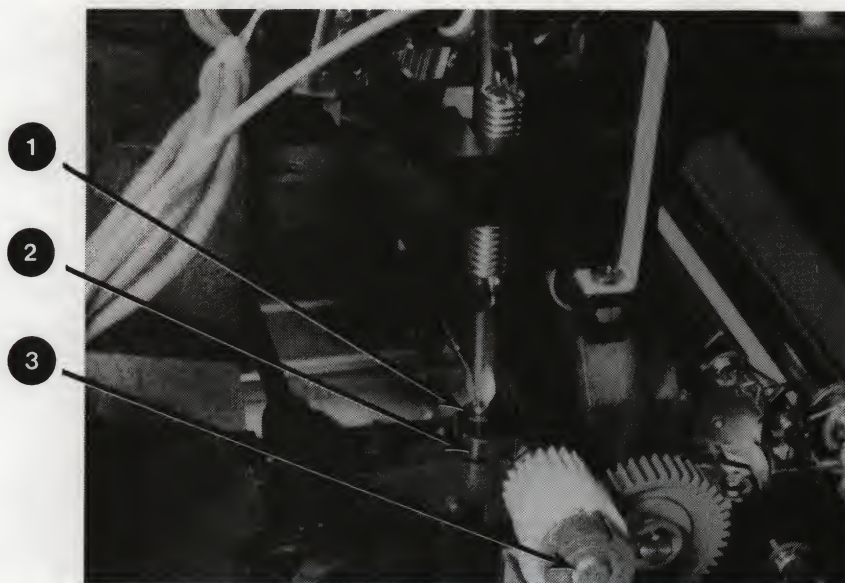
5. Remove the two screws that hold the lamp assembly to the top cover, and remove the lamp assembly.



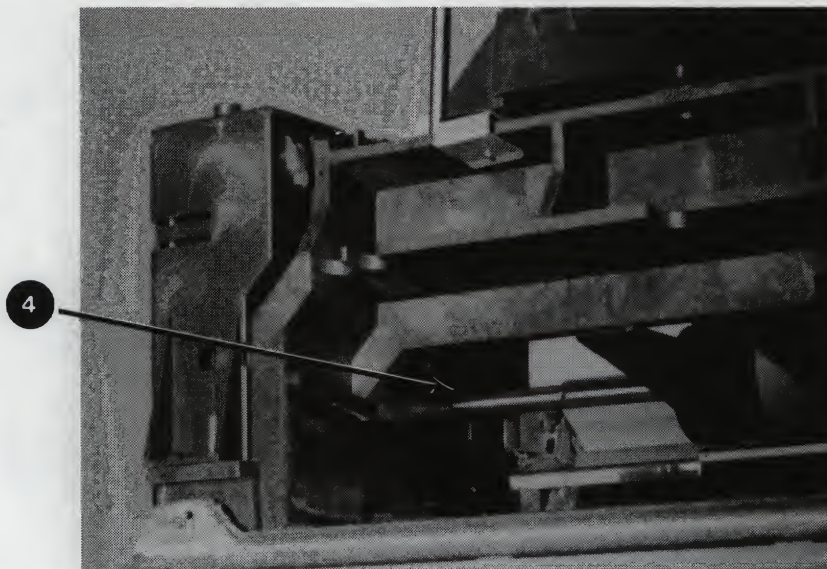
7.23 PICKUP ROLLER ASSEMBLY

Use the following procedure to remove and replace the pickup roller assembly of the DEClaser 2100 printer:

1. Remove the LVPSA as shown in Section 7.16.
2. Remove the screw ❶ that holds the clutch end ❷ of the pickup roller shaft to the chassis ❸.



3. Remove the screw ④ that holds the HVPSA end of the pickup roller shaft to the chassis.

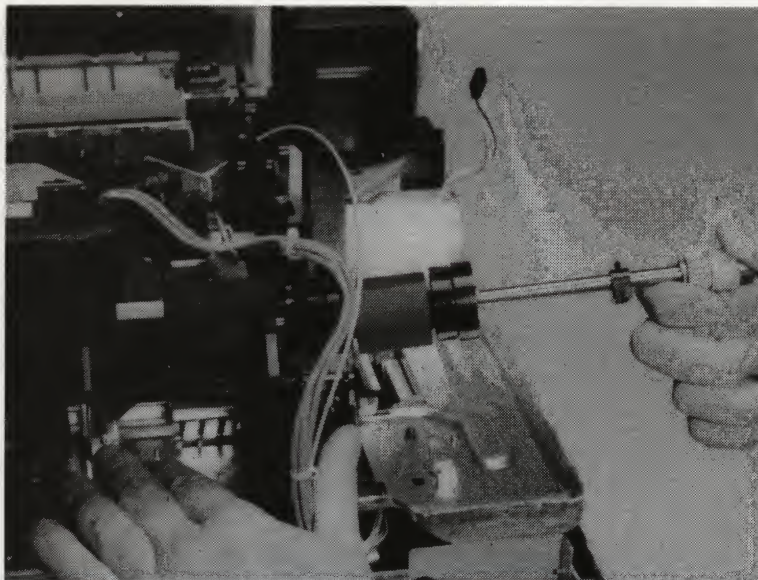


4. Carefully work the pickup roller assembly out of the printer in the direction shown.

CAUTION

Cuts or grease contamination can damage the surfaces of the pickup or auxiliary rollers during removal or replacement. Be careful when handling the pickup roller assembly.

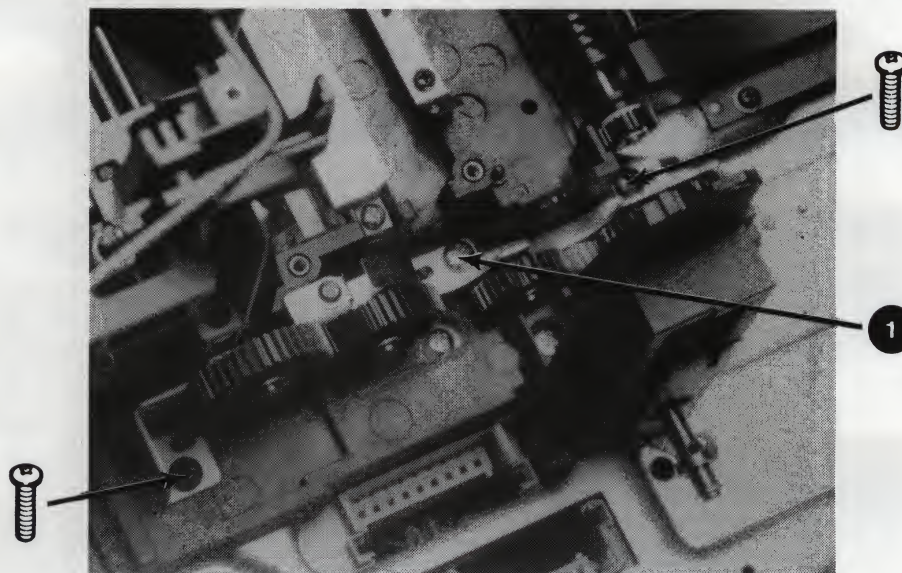
The pickup roller clutch cannot be replaced in the field. A special tool is used to align the clutch on the pickup roller shaft.



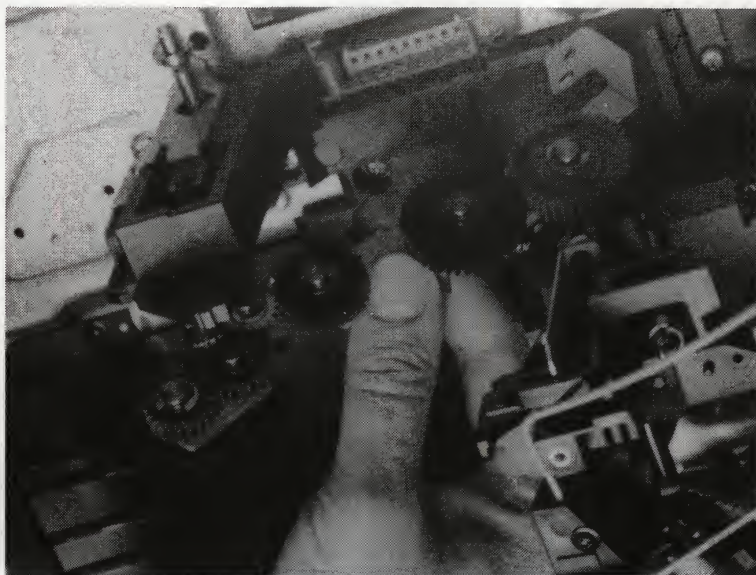
7.24 INTERMEDIATE GEAR ASSEMBLY

Use the procedure below to remove and replace the intermediate gear assembly of the DEClaser 2100 printer.

1. Remove the following components:
 - a. Upper cover as shown in Section 7.7
 - b. Transfer drive assembly as shown in Section 7.20
 - c. Subpanel and HVPSA as shown in Section 7.15
 - d. Transfer corona assembly as shown in Section 7.21
 - e. LVPSA as shown in Section 7.16
 - f. Fixing unit as shown in Section 7.19
 - g. AC inlet assembly as shown in Section 7.26
 - h. Main motor assembly as shown in Section 7.29
 - i. Pickup roller assembly as shown in Section 7.23
 - j. Inside OPC drum drive gear as shown in Section 7.24.1
2. Remove the three screws that secure the gear train. The length of the center screw ❶ is approximately 19 mm (3/4 in).



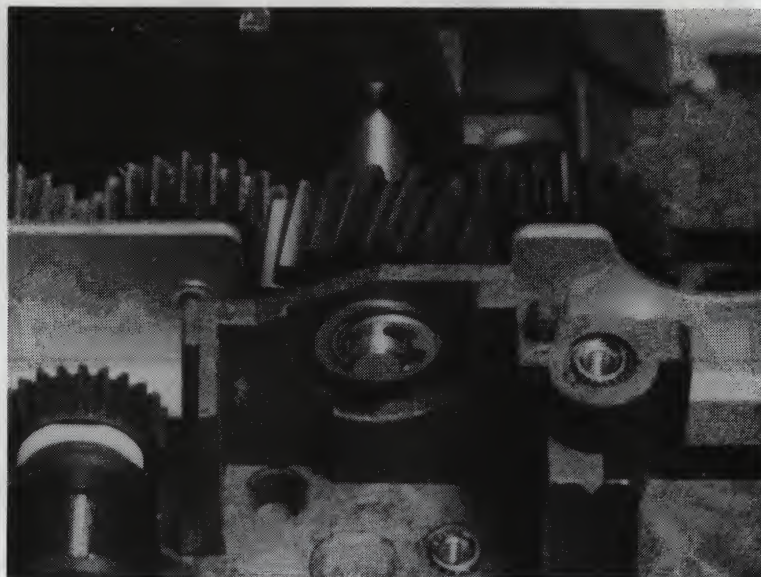
3. Remove the gear train assembly.



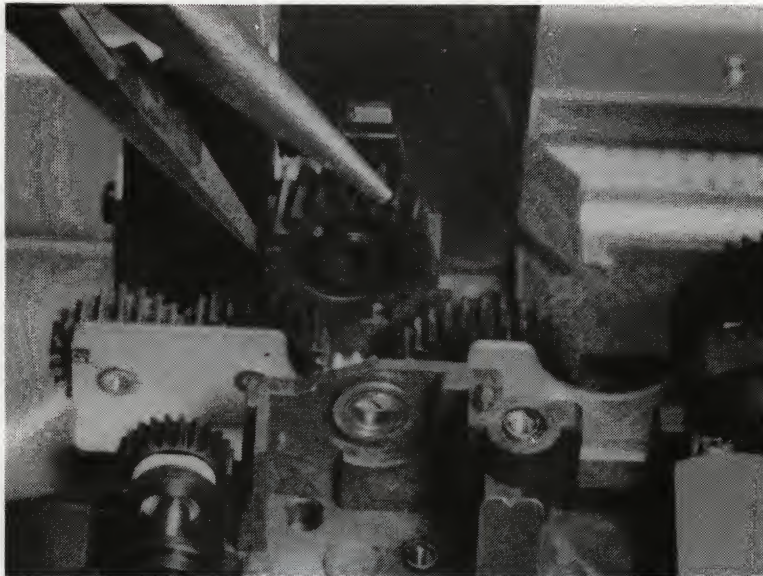
7.24.1 Inside OPC Drum Drive Gear

Use the procedure below to remove and replace the inside drive gear of the OPC drum drive shaft.

1. Remove the following components:
 - a. Upper cover as shown in Section 7.7
 - b. Transfer drive assembly as shown in Section 7.20
 - c. HVPSA as shown in Section 7.15
 - d. Transfer corona assembly as shown in Section 7.21
 - e. LVPSA as shown in Section 7.16
2. Remove the E-ring located inside the drive shaft.



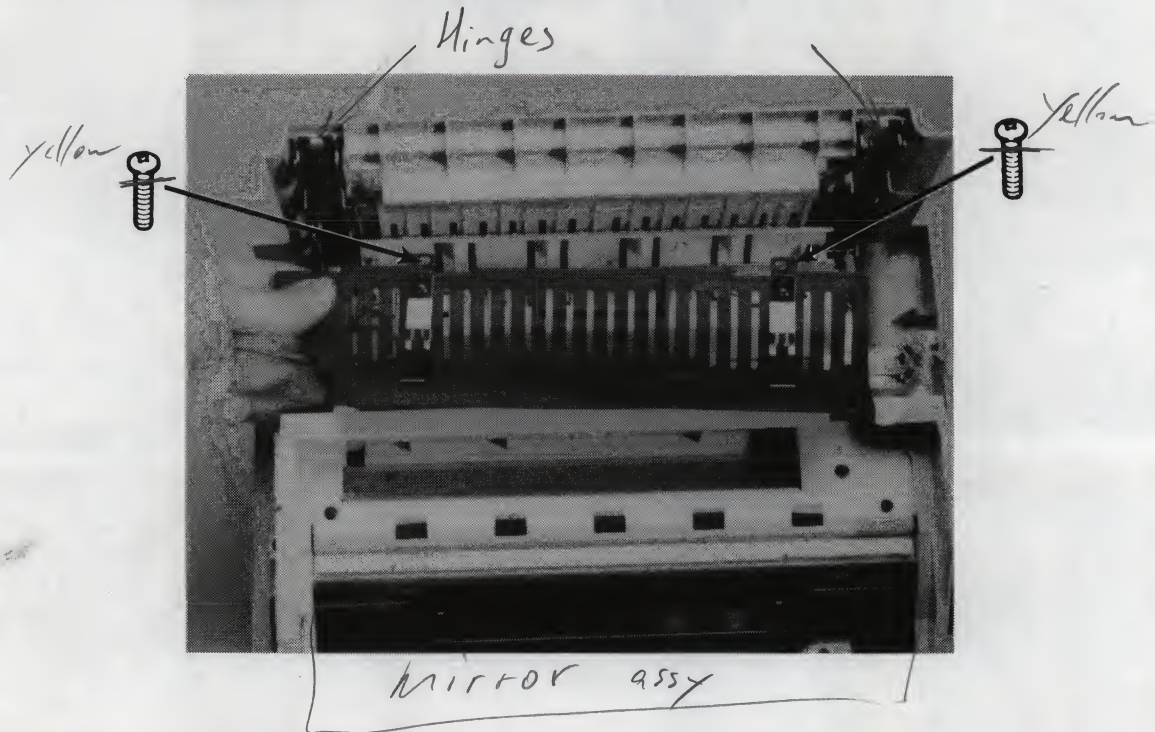
3. Use a small screwdriver or other suitable tool to push and remove the shaft.
4. Remove the inside OPC drum drive gear.



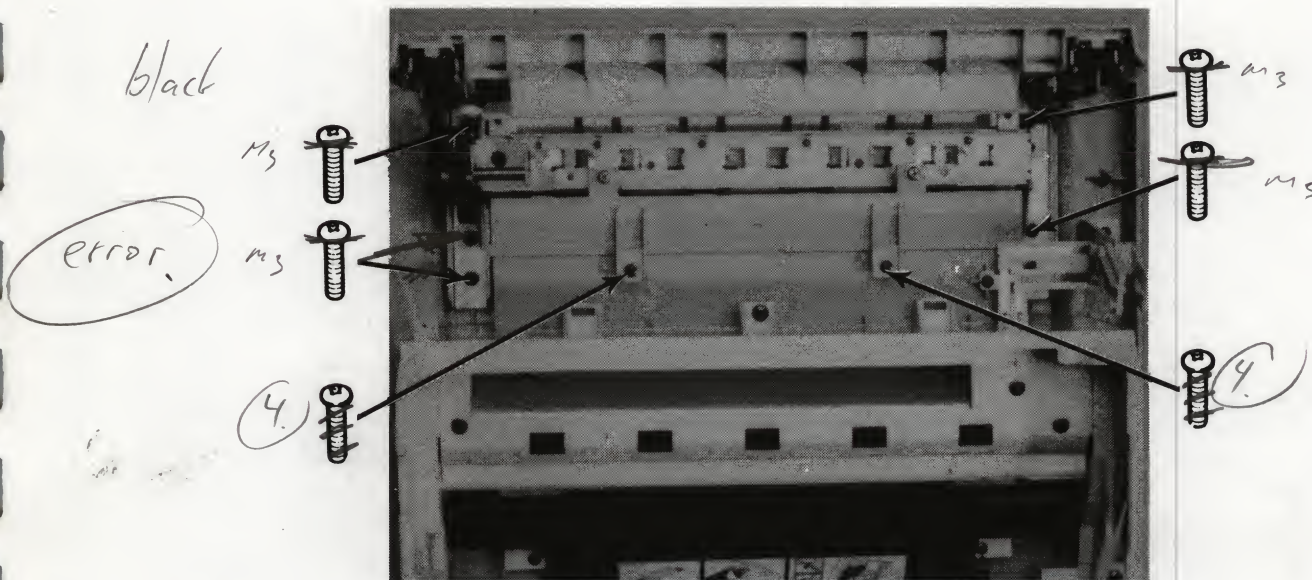
7.25 OUTPUT ROLLER ASSEMBLY

Use the following procedure to remove and replace the output roller assembly of the top cover output tray of the DEClaser 2100 printer:

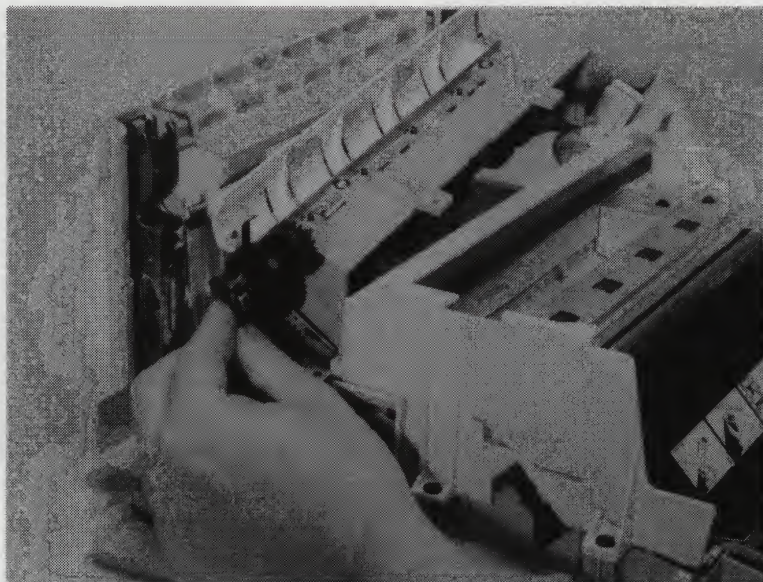
1. Remove the top cover as shown in Section 7.5, and place it upside down on a work surface.
2. Remove the two screws from the fixing unit hold-down plate.
3. Remove the fixing unit hold-down plate.



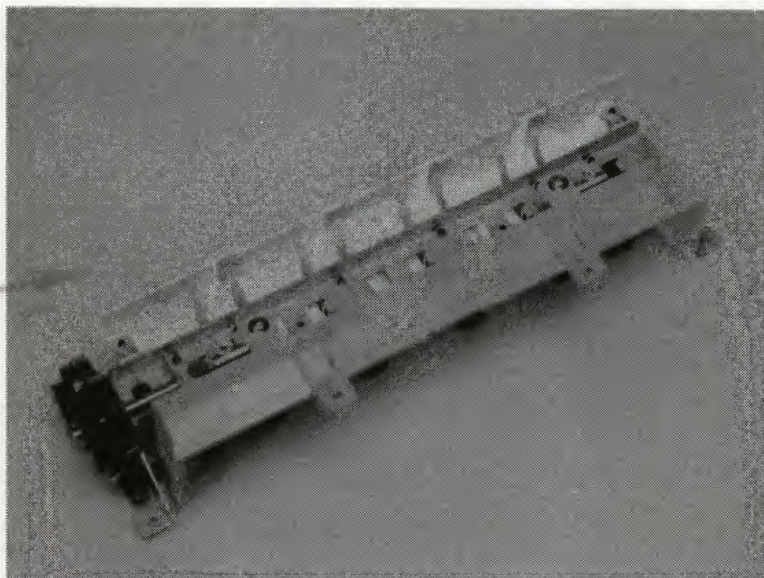
4. Remove the two plastic threaded screws that hold the tray plate to the top cover.
5. Remove the four screws that hold the assembly to the mounting bulkhead.



6. Remove the roller assembly and tray plate. Place the assembly on a work surface.



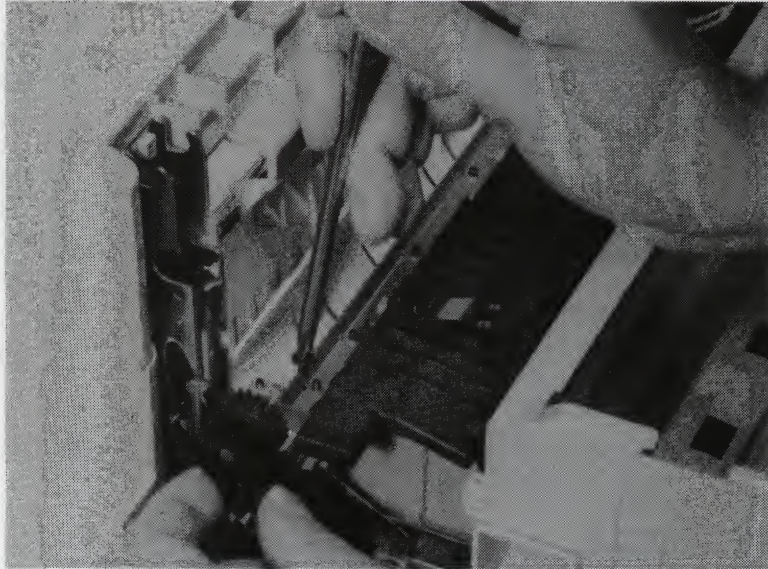
7. Remove the two shoulder screws, and separate the tray plate from the output roller assembly.



7.25.1 Output Roller Drive Gears

Use the following procedure to remove and replace the gear assembly that drives the rollers in the top cover output tray:

1. Remove the top cover as shown in Section 7.5, and place it upside down on a work surface.
2. Remove the screw that holds the assembly to the bulkhead, and remove the assembly.



7.26 AC INLET ASSEMBLY

NOTE

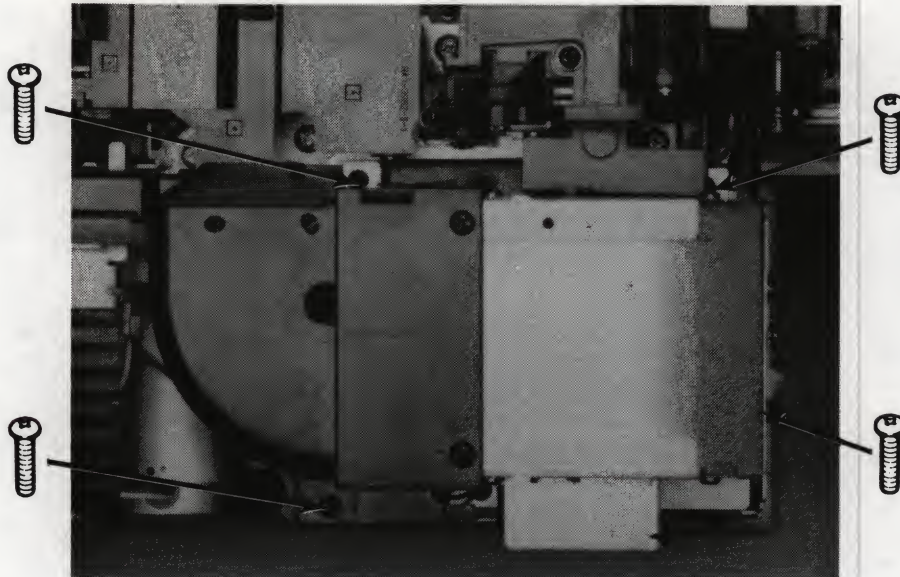
If you are replacing the ac inlet assembly to fix a 50 SERVICE display fault, be aware that 10 minutes of power-down time is required to clear a 50 SERVICE fault.

Use the following procedure to remove and replace the ac inlet assembly:

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

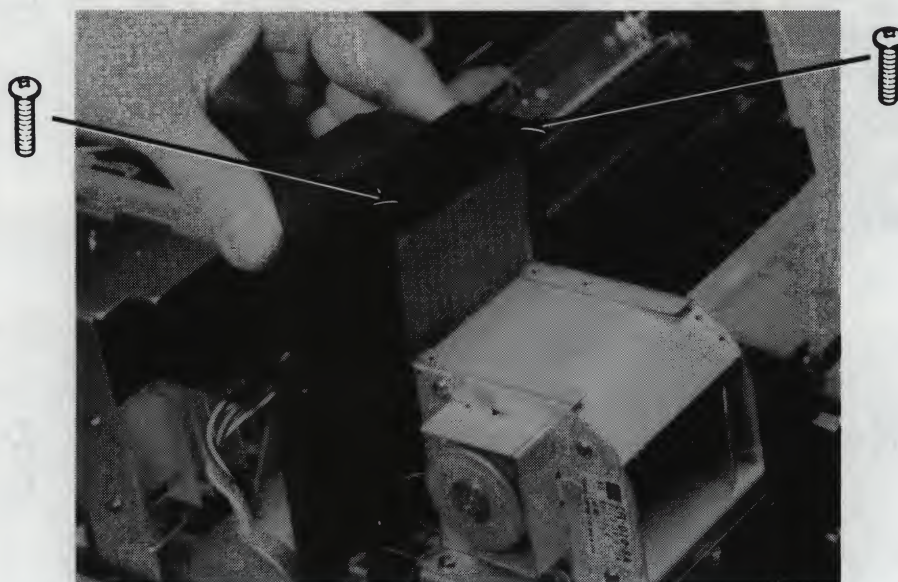
1. Remove the fixing unit as shown in Section 7.19.
2. Remove the upper cover as shown in Section 7.7.
3. Remove the four screws that hold the inlet assembly to the baseplate.
4. Lift, unplug, and remove the ac inlet assembly.



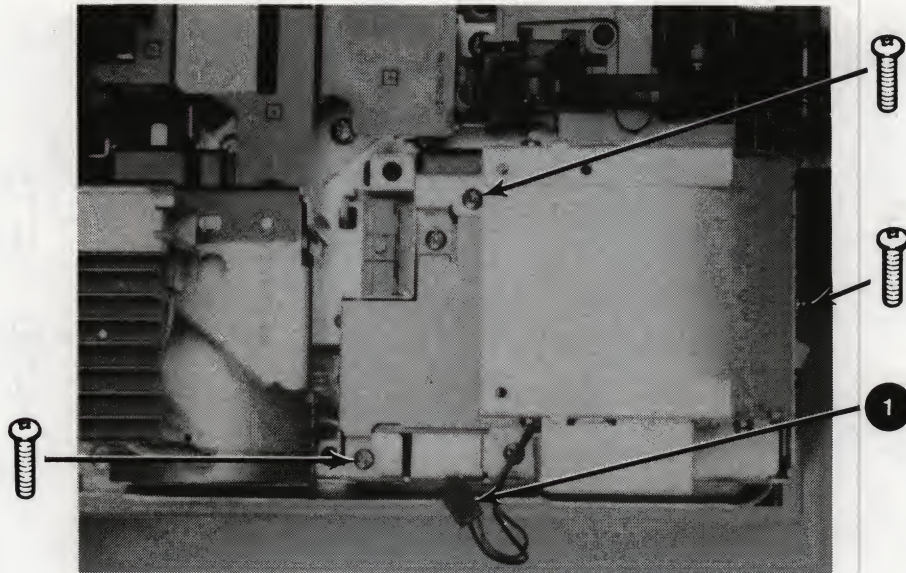
7.27 MAIN FAN (FM1)

Use the following procedure to remove and replace the main fan (FM1) of the DEClaser 2100 printer:

1. Remove the two screws that hold the ozone filter housing.
2. Slide out the ozone filter housing from the holding tab and remove the housing.



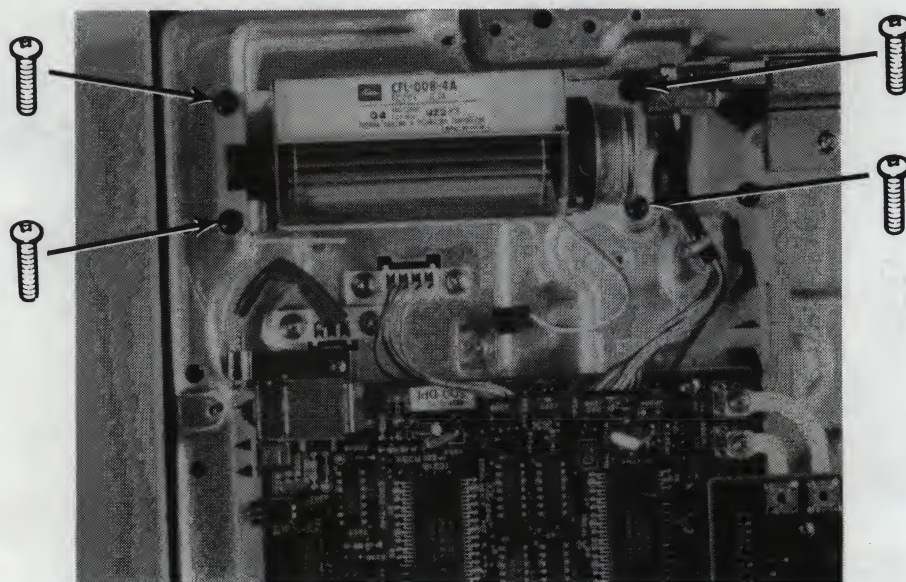
3. Unplug the connector from the fan control unit ①.
4. Remove the three screws that hold the main fan to the ac inlet assembly
5. Remove the main fan.



7.28 FAN (FM2)

Use the following procedure to remove and replace the fan (FM2) of the DEClaser 2100 printer:

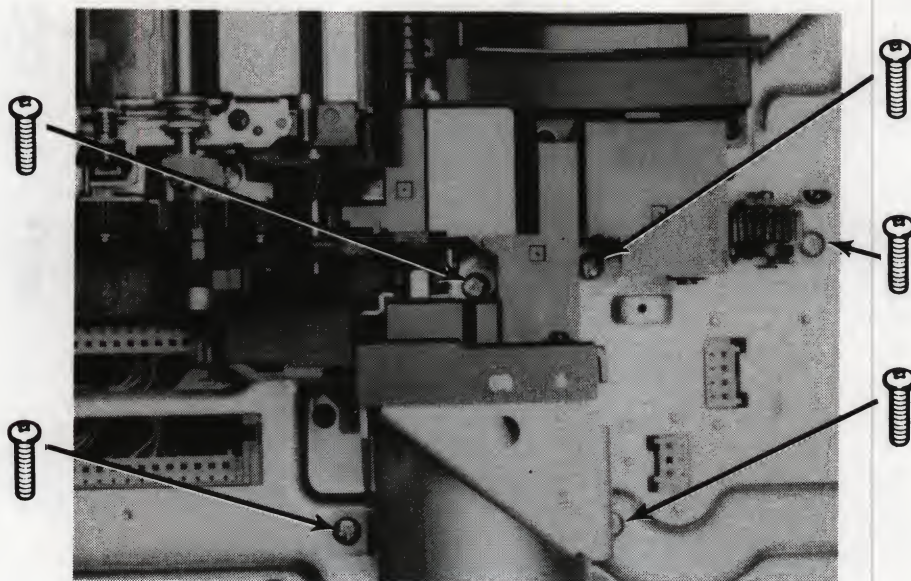
1. Remove the bottom cover as shown in Section 7.8.
2. Disconnect the FM2 cable connector from the 2-pin J207 dc control board connector.
3. Remove the four screws that hold the fan and support bracket to the baseplate, and remove the fan.



7.29 MAIN MOTOR ASSEMBLY

Use the procedure below to remove and replace the main motor assembly of the printer baseplate. The main motor assembly consists of the main motor and main drive gear train.

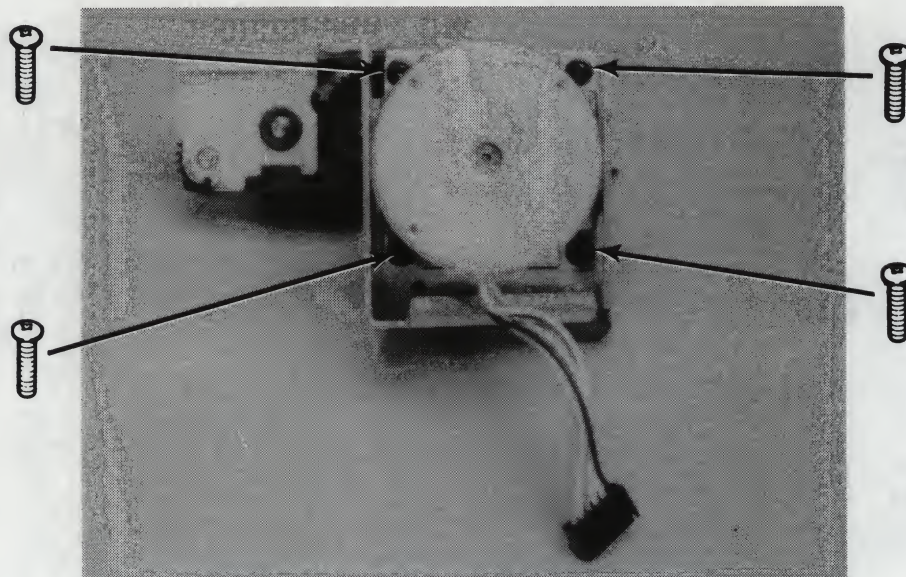
1. Remove the LVPSA as shown in Section 7.16.
2. Remove the ac inlet assembly as shown in Section 7.26.
3. Remove the five screws that hold the main motor assembly to the baseplate.
4. Remove the main motor assembly.



7.29.1 Main Motor Drive (Gears)

Use the following procedure to remove and replace the main motor drive (gears) of the DEClaser 2100 printer:

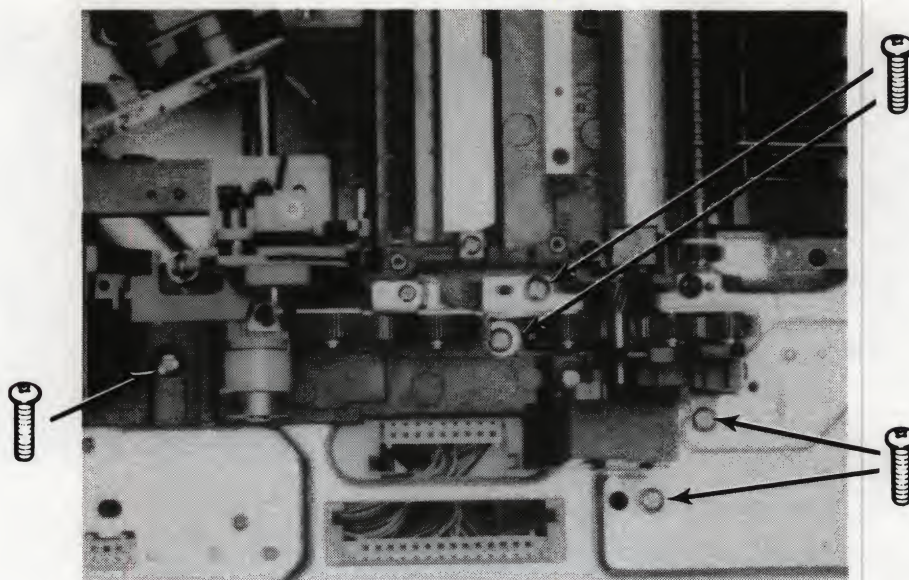
1. Remove the main motor assembly as shown in Section 7.29.
2. Remove the four screws that hold the motor flange to the drive assembly.
3. Remove the main motor from the main motor drive assembly.



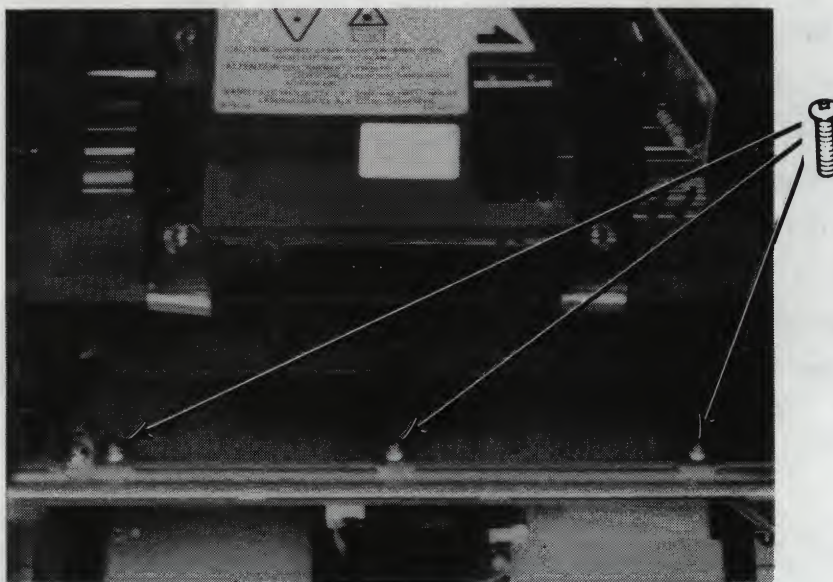
7.30 PAPER PRESSURE ASSEMBLY

Use the procedure below to remove and replace the paper pressure assembly of the DEClaser 2100 printer.

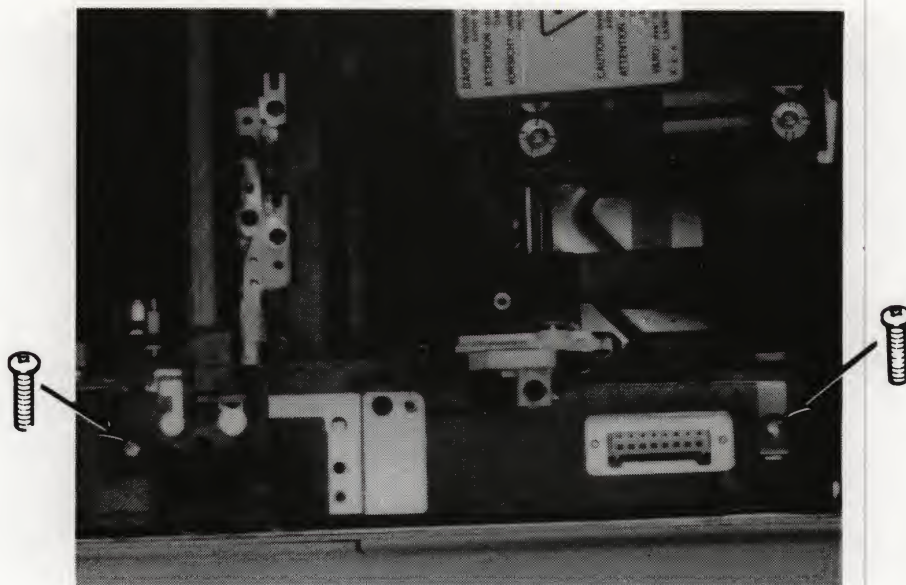
1. Remove the following assemblies and all other parts required by the following procedures:
 - a. Transfer drive assembly as shown in Section 7.20
 - b. HVPSA as shown in Section 7.15
 - c. LVPSA as shown in Section 7.16
 - d. AC inlet assembly as shown in Section 7.26
 - e. Main motor assembly as shown in Section 7.29
2. Disconnect the three cables from the scanner assembly as shown in Section 7.17.
3. Remove five screws that hold the motor side of the chassis to the engine baseplate. Note the screw length for reassembly.



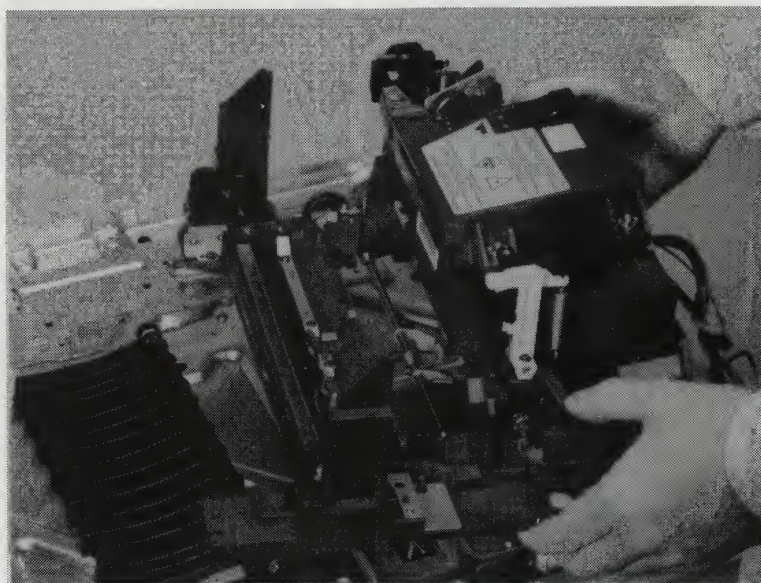
4. Remove the three screws that hold the cassette end of the chassis to the engine baseplate.



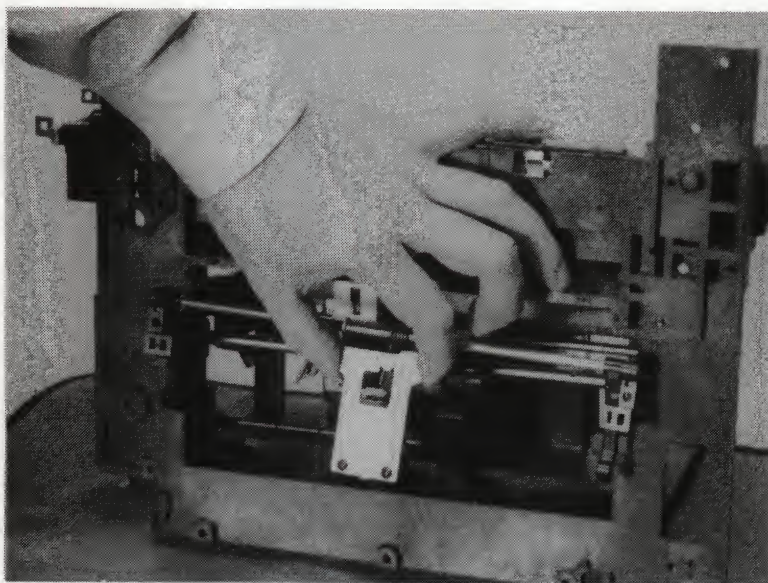
5. Remove the two screws that hold the HVPSA side of the chassis to the engine baseplate.



6. Lift up and remove the chassis assembly from the engine base-plate. Place the chassis assembly end-up on a work surface.



7. Remove the two screws that hold the paper pressure assembly to the chassis.
8. Remove the paper pressure assembly from the chassis.



7.31 VERIFYING PRINTER OPERATION

After completing a removal and replacement procedure, verify the operation of the printer as follows:

- Power up the printer.
- Perform TEST PRINT A.
- Perform TEST PRINT B.

If a fault is encountered during this procedure, go to the appropriate troubleshooting procedure.

UNIT 8

DEClaser 2200 REMOVAL/REPLACEMENT PROCEDURES

8.1 INTRODUCTION

This unit contains the removal and replacement procedures for the DEClaser 2200 FRUs. The unit is a lab unit and is extremely important in understanding the servicing of the printer. The procedures must be performed in the sequence provided. Included in this unit is the recommended spares list for the DEClaser 2200.

8.2 OBJECTIVES

Upon successful completion of Unit 8, the CSE should be able to:

1. Perform FRU removal and replacement procedures in the proper sequence.
2. Perform the necessary steps to verify printer operation.

8.3 REMOVAL AND REPLACEMENT PROCEDURES

This unit describes the recommended spares list (RSL) and contains the removal and replacement procedures for the DEClaser 2200 printer. A typical procedure lists numbered, detailed steps to remove a component from the printer. Unless otherwise noted, you reverse the procedure to replace the component. Also, any step in a procedure may refer you to another procedure.

The RSL describes the spares parts that are stocked for servicing the printer. If you need a part that is not on the RSL, consult the *DEClaser 2100/2200 Illustrated Parts Breakdown* (EK-D2122-IP) for the part number or order information.

8.4 RECOMMENDED SPARES LIST (RSL)

Table 8-1 lists the recommended spares for the DEClaser 2200 printer.

Table 8-1 DEClaser 2200 RSL

Part Number	Description
LN-XX-LN	Optional envelope feeder
29-28270-01 ¹	100/115-Vac, ac inlet assembly
29-28270-02 ¹	220/240-Vac, ac inlet assembly
29-28281-01 ¹	Main (FM1) fan (mounts on ac inlet assembly)
29-28271-01 ¹	Fan (FM2)
29-28273-01 ¹	High-voltage power supply assembly (HVPSA)
29-28276-01 ¹	Preconditioning lamp assembly
29-28277-01 ¹	Transfer corona assembly
29-28278-01 ¹	Intermediate gear assembly
LN-XX-AC ¹	Toner supplies (EP-S) cartridge kit
29-28314-01 ¹	Miscellaneous screws kit
29-28282-01 ¹	Paper pressure assembly (for upper cassette)
29-28300-01	Lower paper pressure assembly
29-28291-01 ¹	Upper separation pad
29-28307-01	Lower separation pad
29-28272-01 ¹	Ozone filter
20-33113-01 ¹	1-Mbyte RAM card
20-32801-01 ¹	2-Mbyte RAM card
20-32802-01 ¹	3-Mbyte RAM card
29-28288-01	100/115-Vac fixing unit or assembly
29-28288-02	220/240-Vac fixing unit or assembly
29-28289-01	100/115-Vac low-voltage power supply assembly (LVPSA) with attached solenoid and sensor board
29-28289-02	220/240-Vac LVPSA with attached solenoid and sensor board
29-28274-01 ¹	Laser scanner assembly
29-28305-01	DEClaser 2200 control panel assembly

¹ This part is interchangeable. The same part number is used for the DEClaser 2100 and 2200 printers.

Table 8-1 (Cont.) DEClaser 2200 RSL

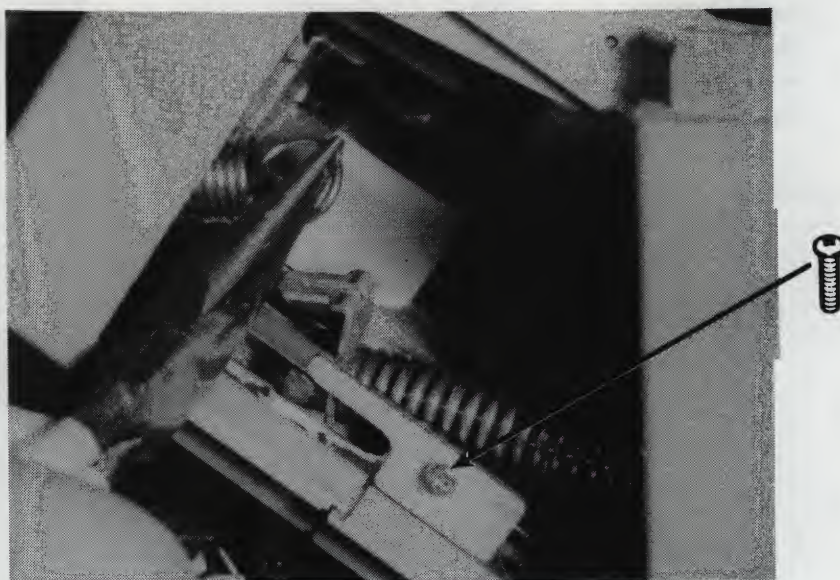
Part Number	Description
29-28292-01	Transfer guide assembly
29-28301-01 ¹	Solenoid and sensor board
29-28293-01	Upper pickup roller assembly
29-28294-01	Lower pickup roller assembly
29-28306-01	Video control board
29-28290-01	DC control board
29-28275-01 ¹	Input/output board
29-28280-01 ¹	Main motor assembly
29-28279-01 ¹	Main motor drive assembly
29-28295-01	Duplex motor
29-28296-01	Alignment guide drive assembly
29-28297-01	Inverter drive assembly
29-28299-01 ¹	Output roller paper delivery assembly

¹ This part is interchangeable. The same part number is used for the DEClaser 2100 and 2200 printers.

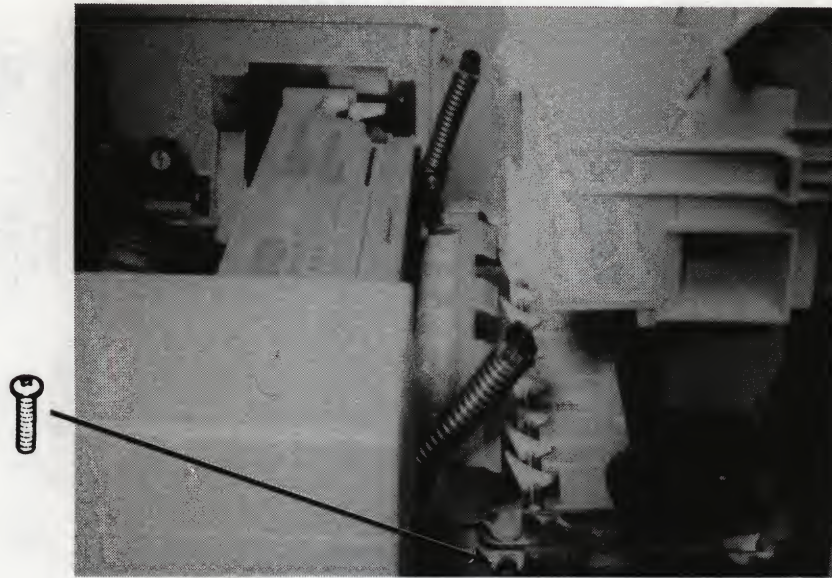
8.5 TOP COVER

Use the following procedure to remove and replace the top cover of the DEClaser 2200 printer:

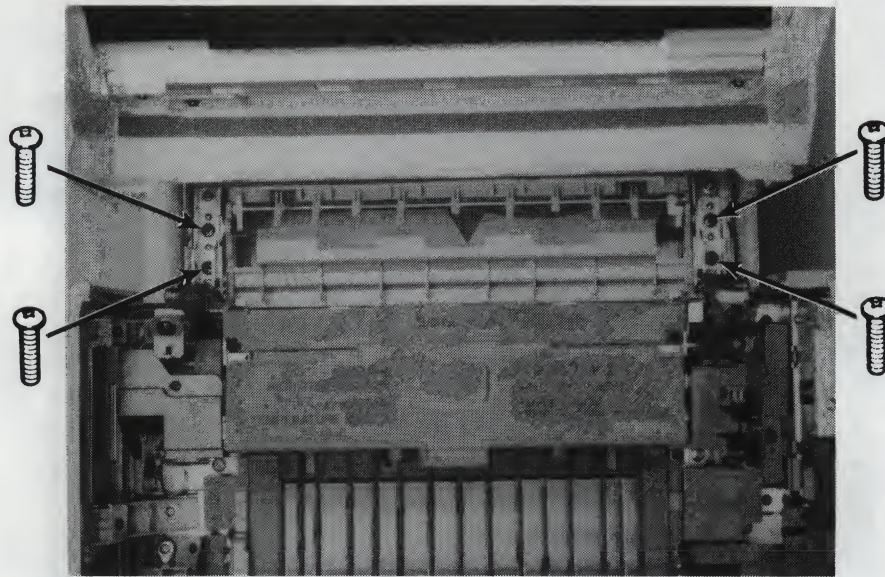
1. Remove the inverter side panels as shown in Section 8.14.3.
2. Remove the inverter support arms as shown in Section 8.14.2.
3. Open the top cover.
4. Remove the EP-S cartridge as shown in Section 8.16.
5. Disengage the upper spring from the bracket.
6. Remove the screw that holds the left guard plate, and remove the guard plate.



7. Remove the screw that holds the right guard plate, and remove the guard plate.
8. Disengage both springs from the slots.
9. Park both springs in the up position for access to the hinge screws.



10. Remove the four screws that hold the hinge to the top cover, then remove the cover.



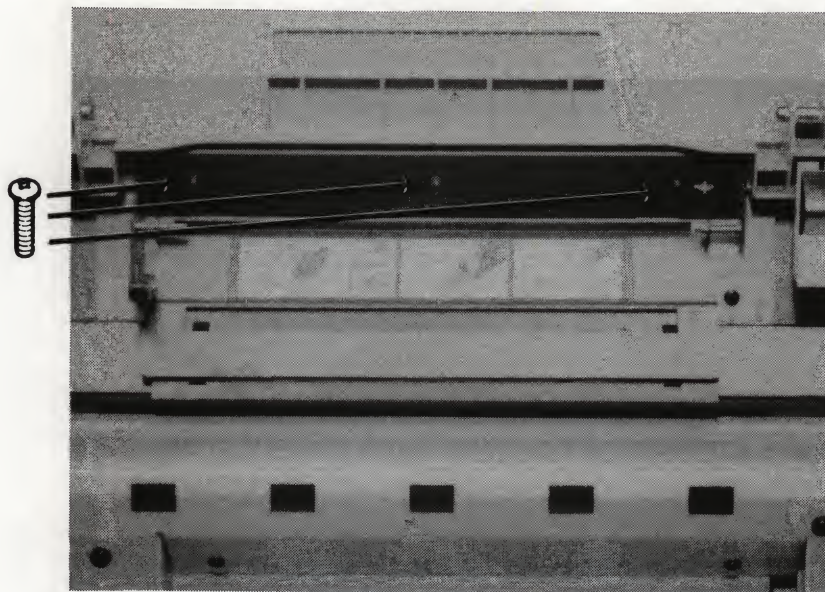
8.5.1 Top Cover Mirror

Use the following procedure to remove and replace the top cover mirror of the DEClaser 2200 printer:

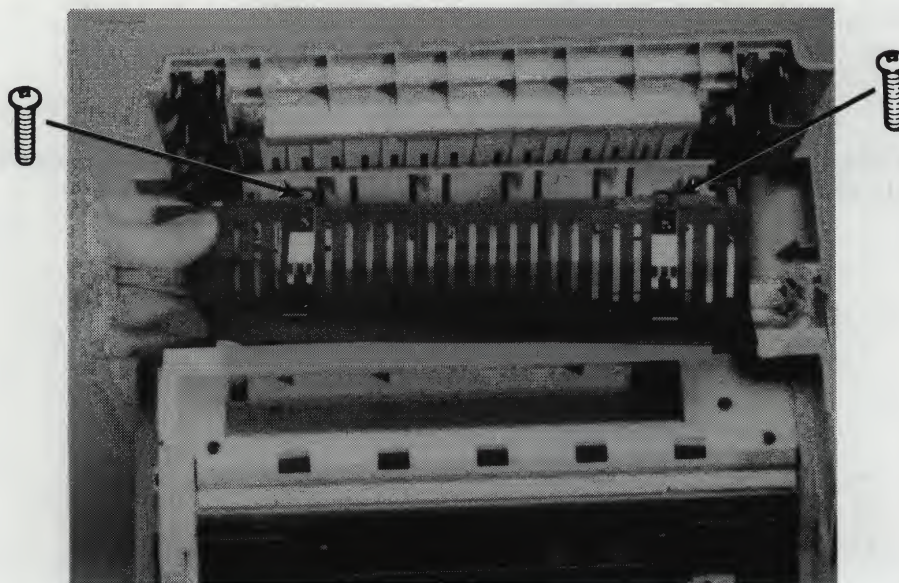
1. Remove the EP-S cartridge as shown in Section 8.16.
2. Remove the three screws that hold the shutter to the bulkhead.
3. Lift and remove the shutter.
4. Stop here if you intend to clean the mirror. Remove the mirror.

CAUTION

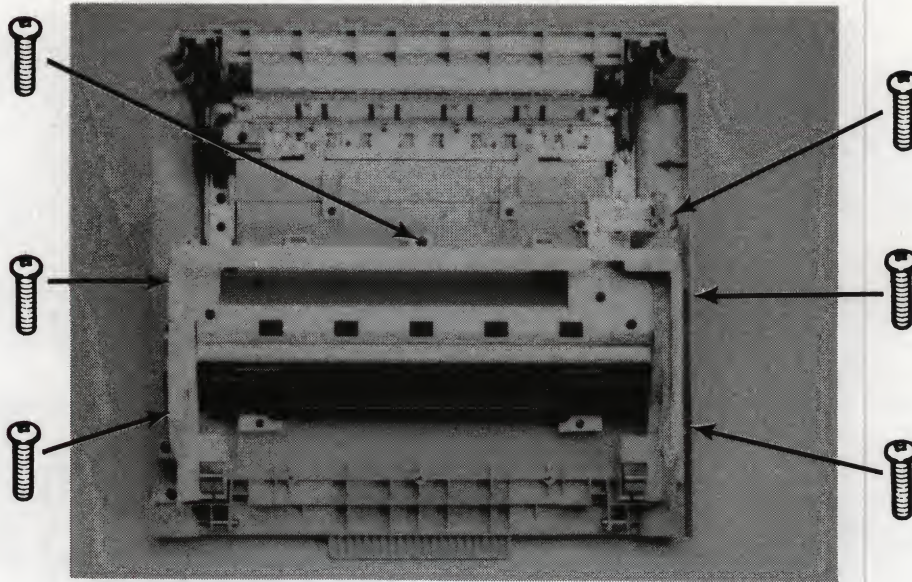
Be careful when handling the mirror. The surface of the mirror is sensitive and is easily scratched or damaged by dirt or finger oils.



5. Remove the top cover as shown in Section 8.5, and place it upside down on a work surface.
6. Remove the two screws from the fixing unit hold-down plate.
7. Remove the fixing unit hold-down plate.



8. Remove the six screws that hold the subframe to the top cover.

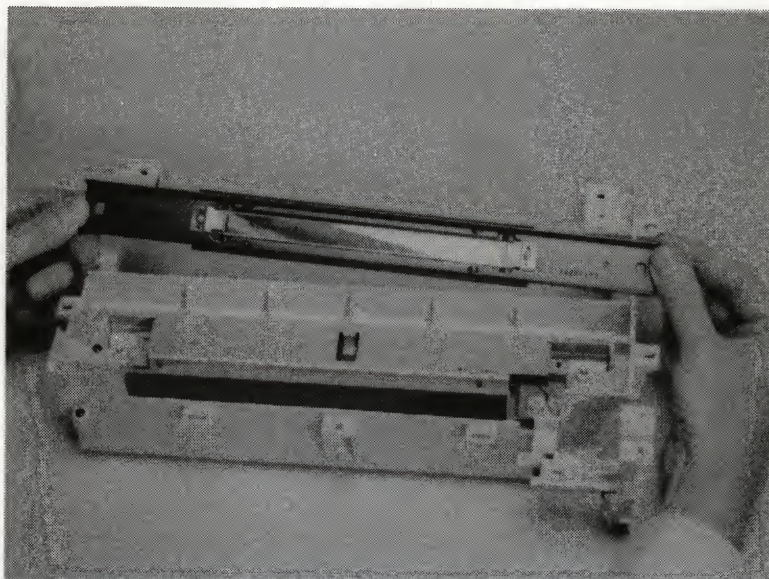


9. Hold the mirror to the subframe (as shown) while you lift and remove the subframe.



10. Place the subframe on a work surface, as shown below.
11. Remove the mirror from the guideposts.

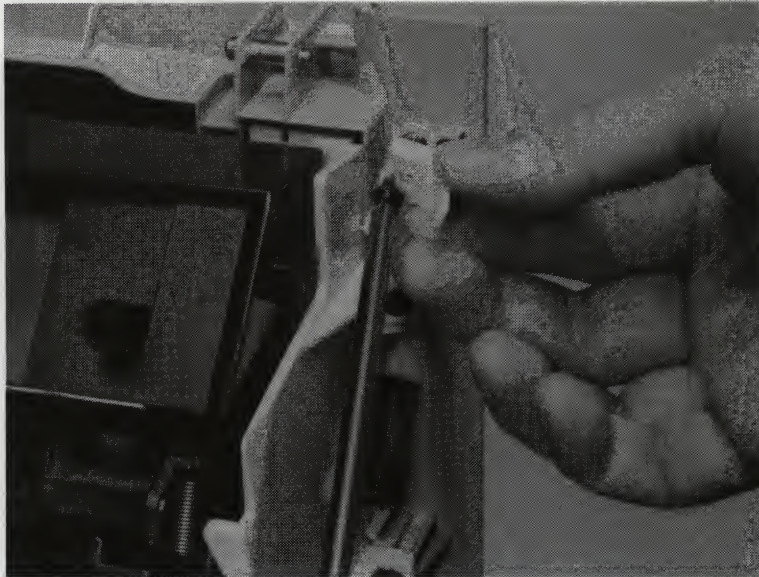
The mirror mounting holes and subframe posts are two different sizes. After you mount the mirror, make sure the mirror is free to move up and down on the subframe posts and site correctly.



8.5.2 Top Cover Switch Lever

Use the procedure below to remove and replace the switch lever that is mounted on the top cover. When the top cover is closed, the switch lever depresses the interlock switches.

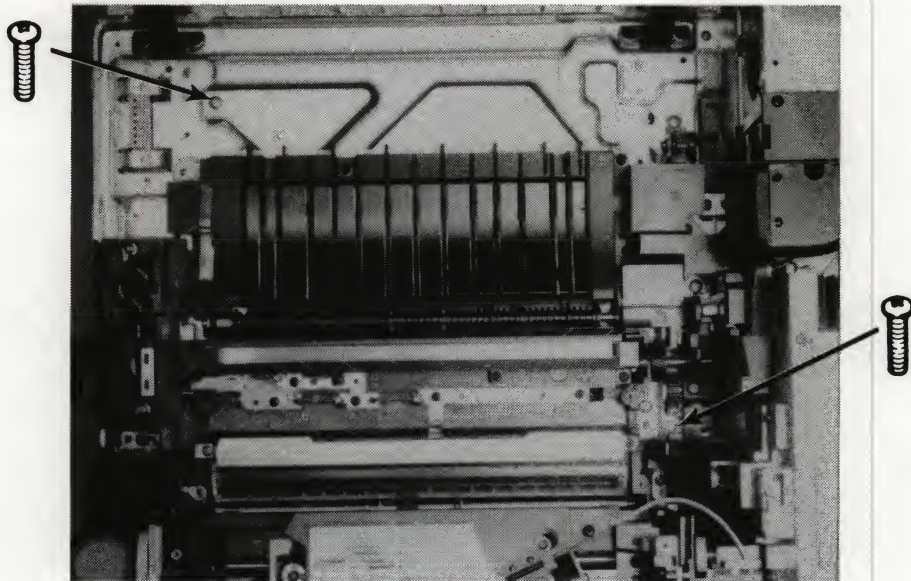
1. Open the top cover.
2. Remove the screw that holds the switch lever to the top cover, and remove the switch lever.



8.6 ASSEMBLY SEPARATION

Use the procedure below to separate the duplex and printing assemblies of the DEClaser 2200 printer.

1. Remove the following components:
 - a. Inverter side panels and support arms as shown in Section 8.14.3 and Section 8.14.2
 - b. EP-S cartridge as shown in Section 8.16
 - c. Upper cover as shown in Section 8.10
 - d. Duplex gear side panel as shown in Section 8.11
 - e. Fixing unit as shown in Section 8.27
 - f. Transfer drive assembly as shown in Section 8.28
2. Remove the two inside screws.
3. Remove the rear screw, which is not shown below.

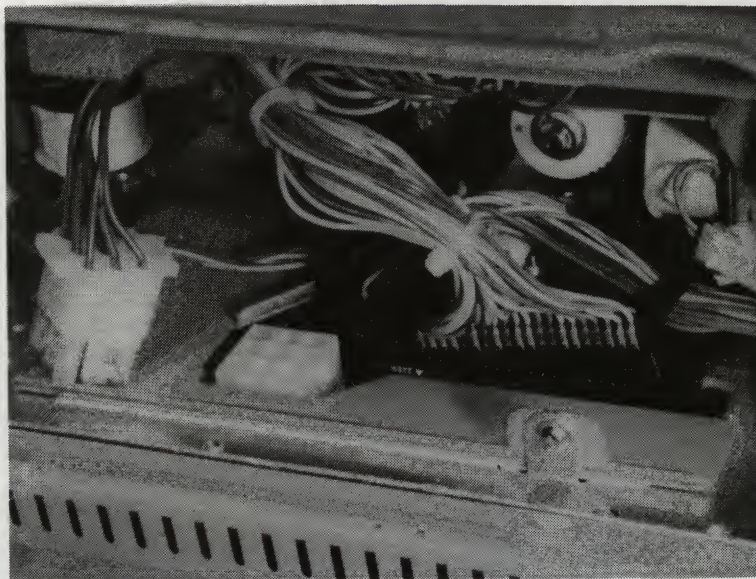


4. Do the following to disconnect the printer from the dc control board:

- ① Unplug the 9-pin locking connector, J216.
- ② Unplug the 40-pin connector, J214.

J216

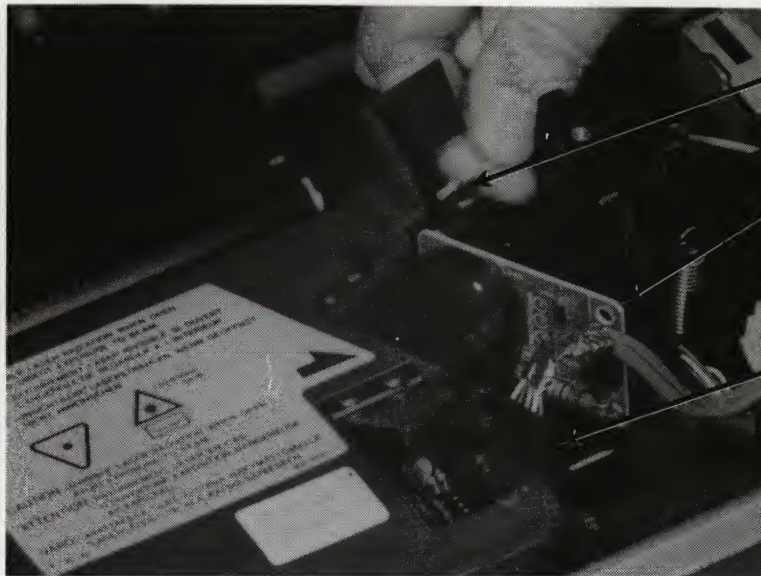
① →



②
J214

5. Unplug the following connectors from the scanner assembly:

- ① Remove the screw and open the access hatch. Remove the fiber optic light cable as shown below.
- ② Open the access hatch and unplug the 5-pin J401 connector.
- ③ Unplug the 4-pin J451 connector.

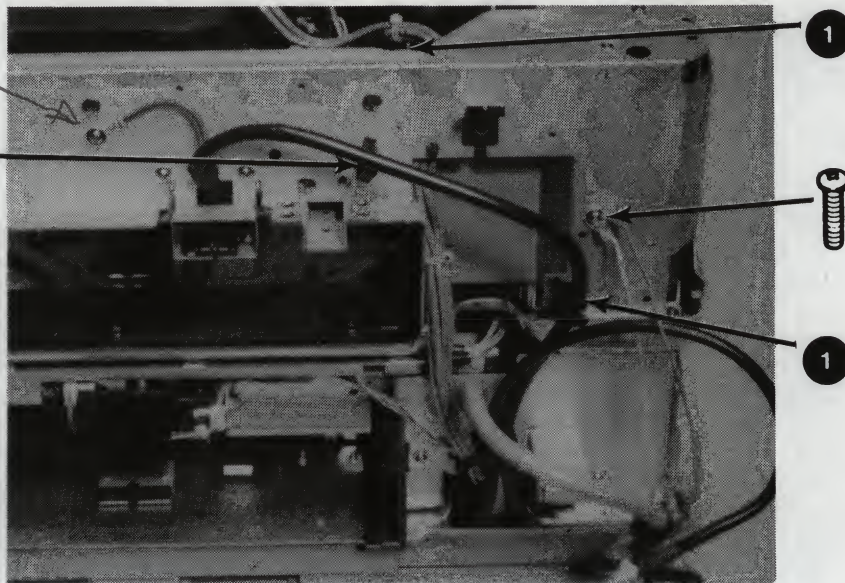


① Fiber

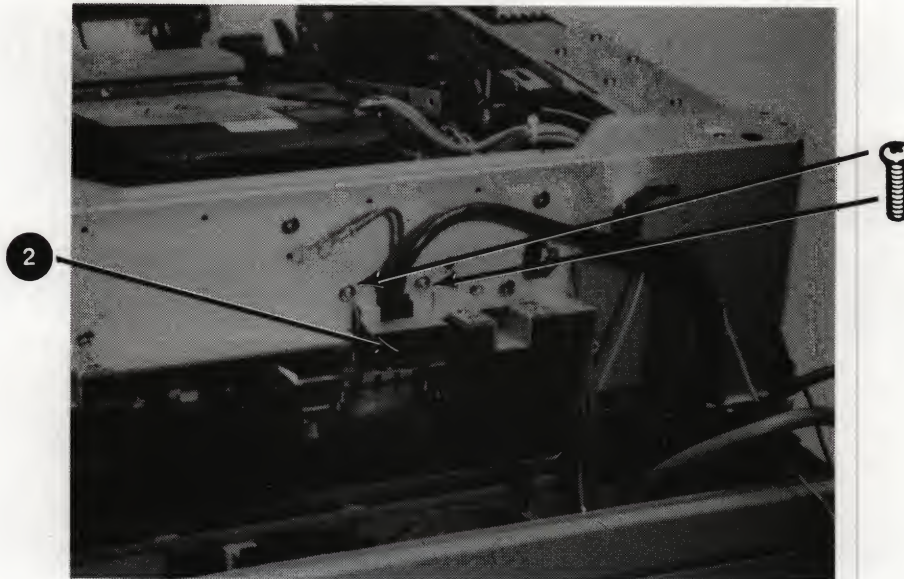
② J401

③ J451

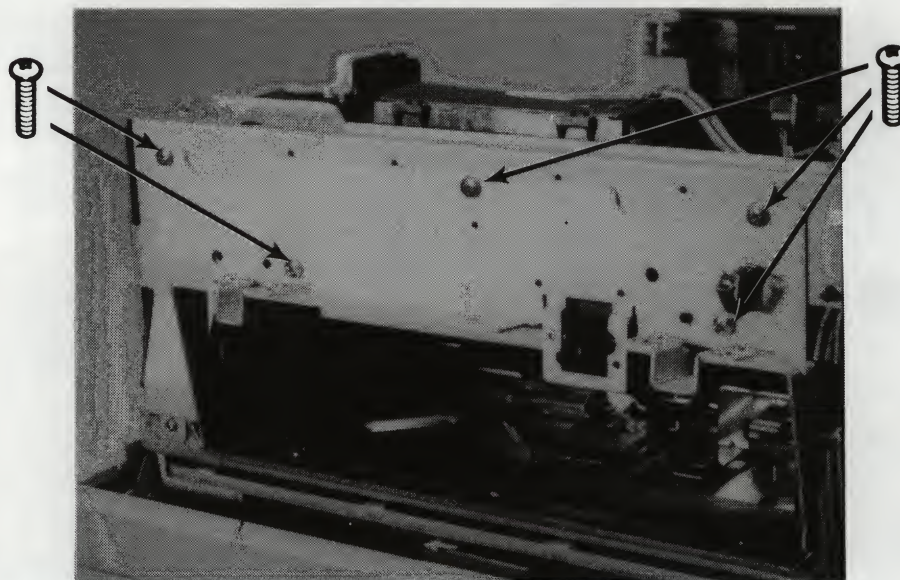
6. Remove the screw that holds the two ground wires to the front subpanel.
7. Remove the screw that holds the single ground wire to the feeder bracket.
8. Release the three snaps **1** and remove the cables from the clamps.



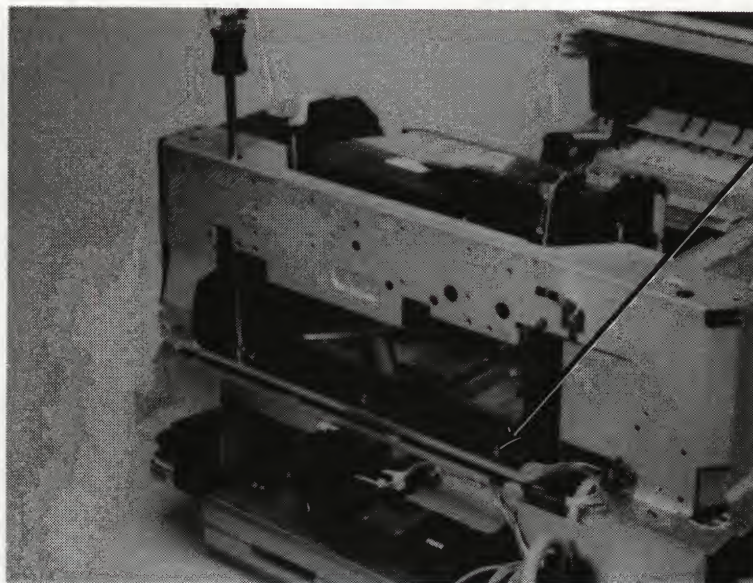
9. Remove the two screws and remove the metal connector guide.
10. Remove the two shoulder screws and remove the connector ②. The connector is for the envelope feeder option.



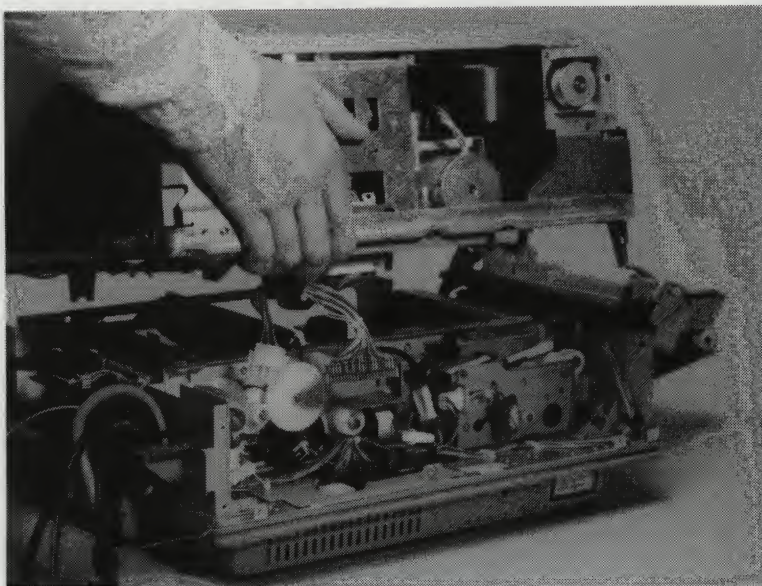
11. Remove the cables from the printer.
12. Remove the five screws and remove the envelope feeder bracket.



13. Use a long-shank Phillips screwdriver to remove the two front screws.



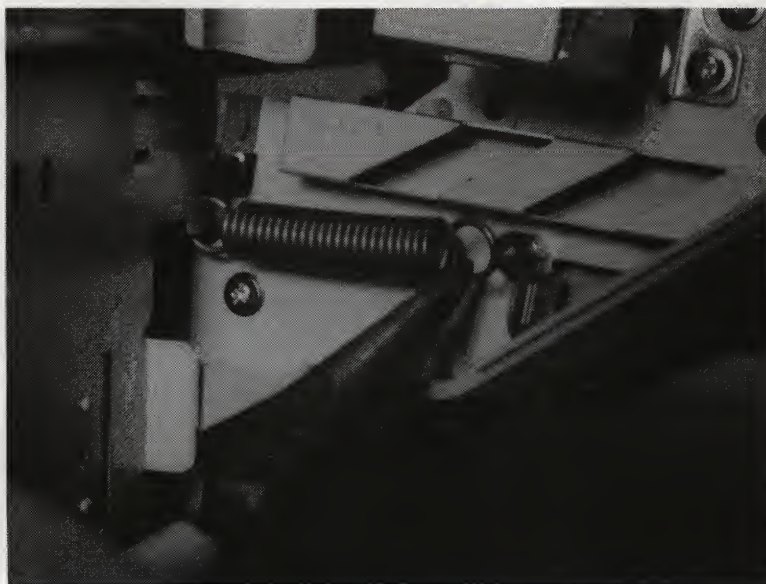
14. Close the top cover before proceeding to the next step.
15. Lift the upper section to separate the printer from the duplex assembly.



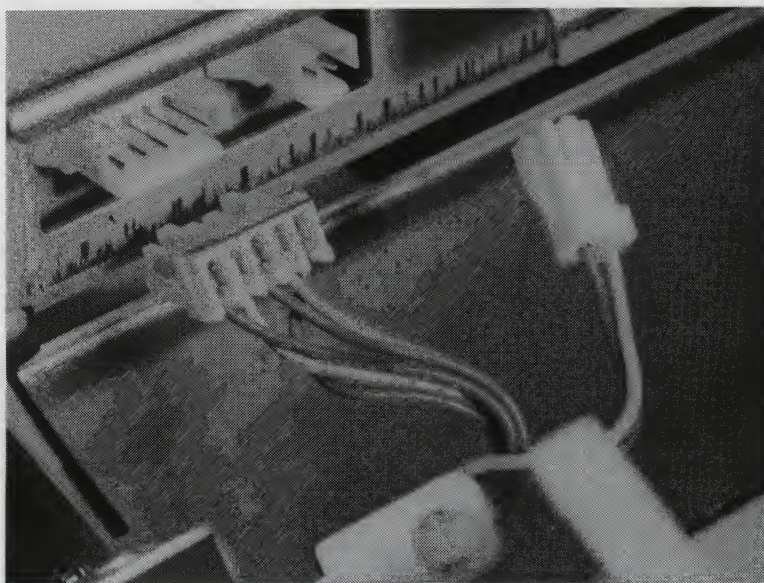
8.7 INVERTER UNIT

Use the procedure below to remove and replace the inverter unit of the DEClaser 2200 printer.

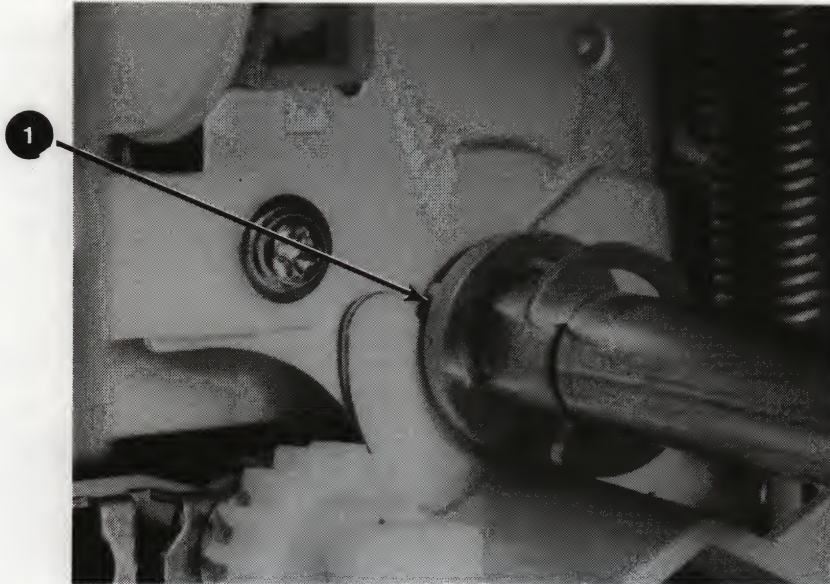
1. Remove the following components:
 - a. Duplex gear side panel as shown in Section 8.11
 - b. Duplex inverter panel as shown in Section 8.14
 - c. Inverter side panels as shown in Section 8.14.3
 - d. Inverter support arms as shown in Section 8.14.2
 - e. Inverter drive assembly and drive belt as shown in Section 8.37.5 and Section 8.37.6
2. Remove the inverter shock spring.



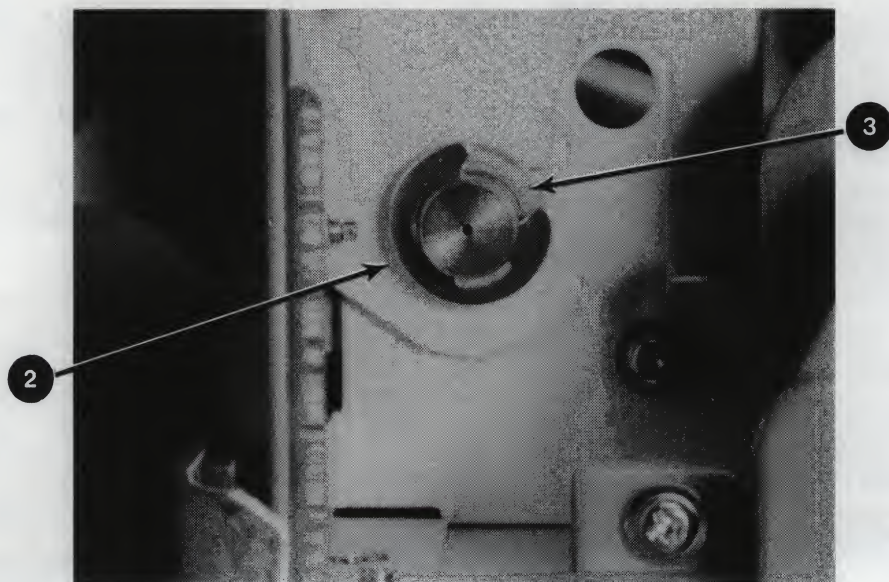
3. Unplug the two connectors that connect the inverter unit to the duplex bulkhead.



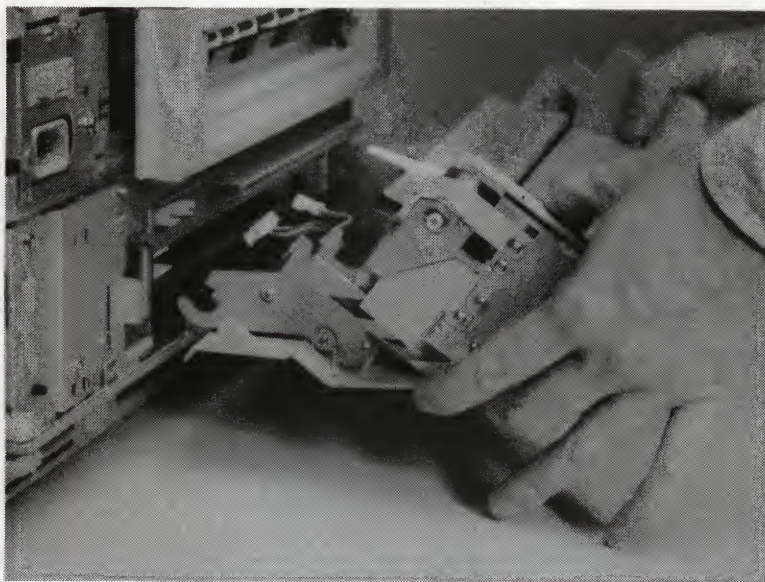
4. Remove the plastic washer and two E-rings from the drive belt side of the inverter hinge shaft.
5. Remove the bearing **1**. Be careful to support the inverter unit.



6. Remove the E-ring ② from the access side hinge shaft.
7. Remove the bearing ③.



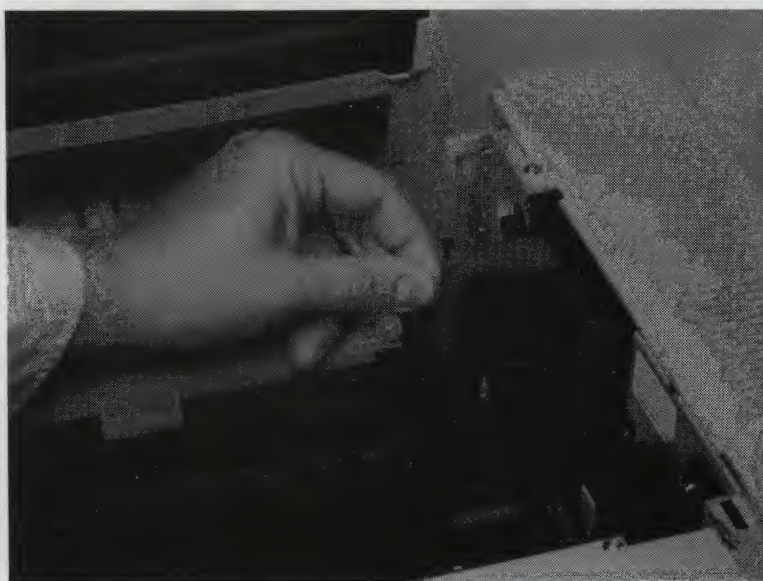
8. Remove the inverter unit.



8.8 OZONE FILTER

Use the following procedure to remove and replace the ozone filter of the DEClaser 2200 printer:

1. Open the top cover.
2. Use a fingernail to pry open the hatch.
3. Grasp the tab and pull out the ozone filter.



8.9 OPTIONAL ENVELOPE FEEDER

Use the following procedure to remove, replace, and install the optional envelope feeder of the DEClaser 2200 printer:

NOTE

The optional envelope feeder cannot be installed on the DEClaser 2100 printer.

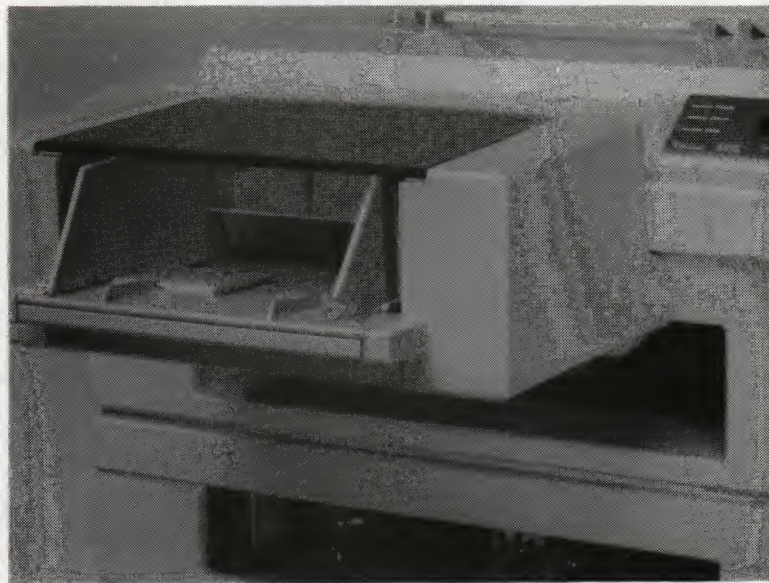
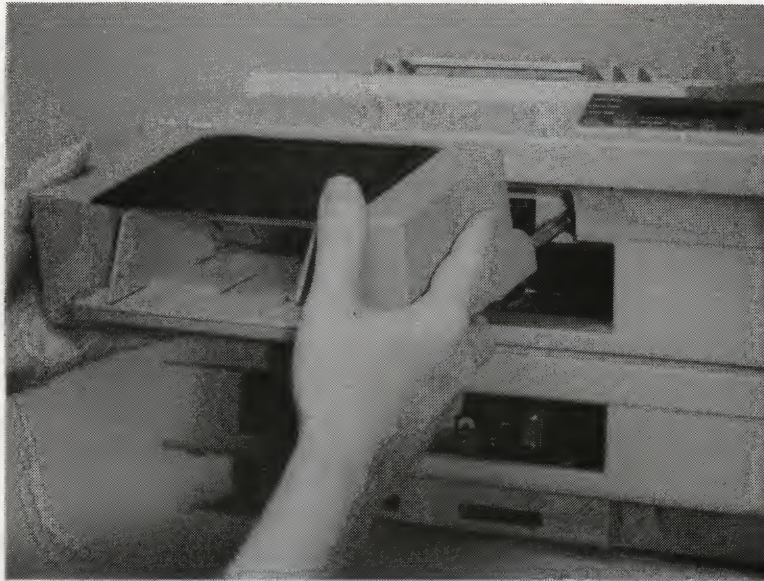
1. If the access panel is installed, pry it off with your finger.



2. If an upper cassette is installed, remove it.
3. Remove the manual feeding top from the cassette.
4. Install the option top on the upper cassette.
5. Install the upper cassette with option top.



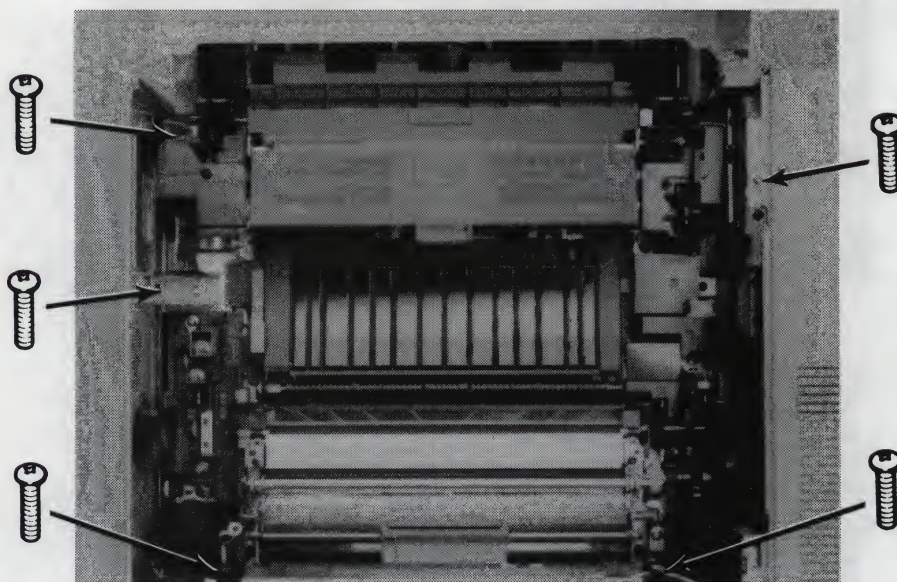
6. Insert the two alignment dowels and slide in the envelope feeder completely. The envelope feeder sits firmly against the upper cover when correctly seated.



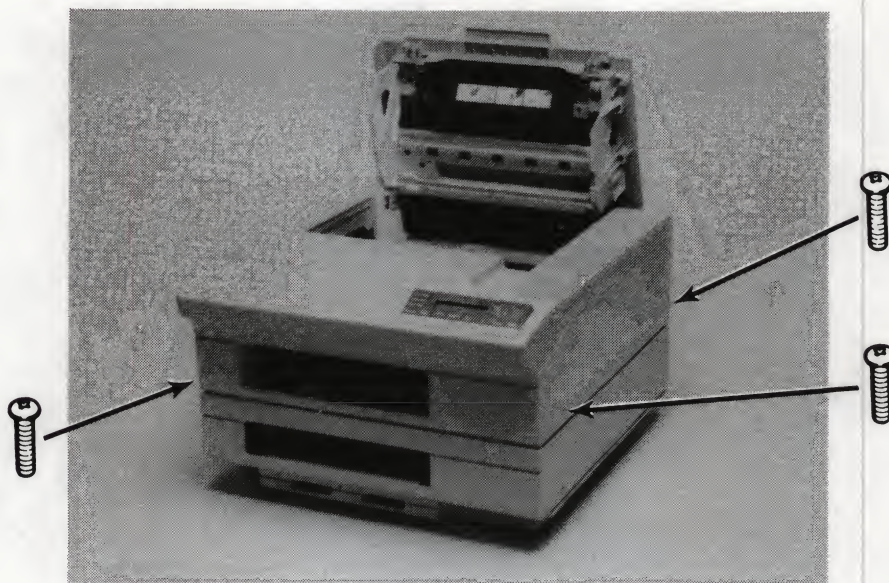
8.10 UPPER COVER

Use the following procedure to remove and replace the upper cover of the DEClaser 2200 printer:

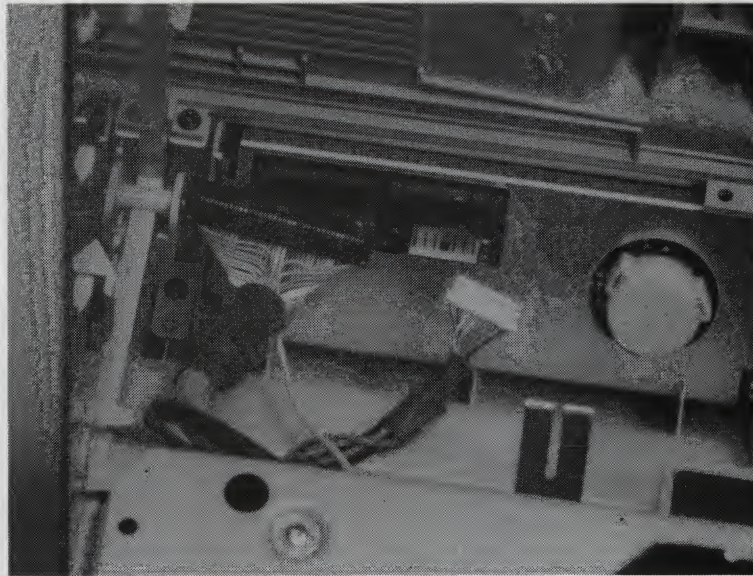
1. Open the top cover.
2. Remove the EP-S cartridge as shown in Section 8.16.
3. If the optional envelope feeder is installed, remove it as shown in Section 8.9.
4. Remove the upper and lower paper cassettes.
5. Remove the five screws that are shown below.



6. Remove the two side screws.
7. Remove the single rear screw.



8. Partially withdraw the upper cover until the control panel connector is accessible.
9. Disconnect the two control panel connectors.



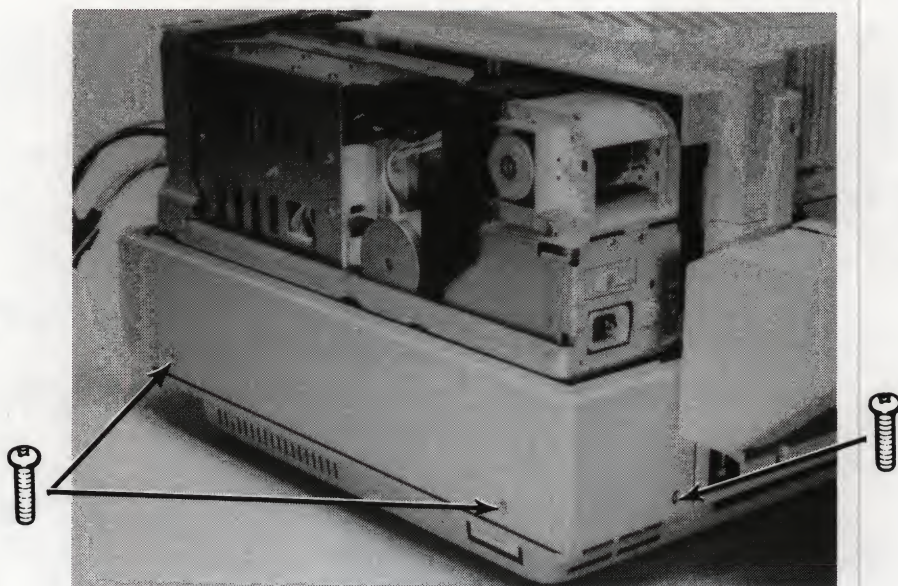
10. Remove the upper cover.



8.11 DUPLEX GEAR SIDE PANEL

Use the following procedure to remove and replace the duplex gear side panel of the DEClaser 2200 printer:

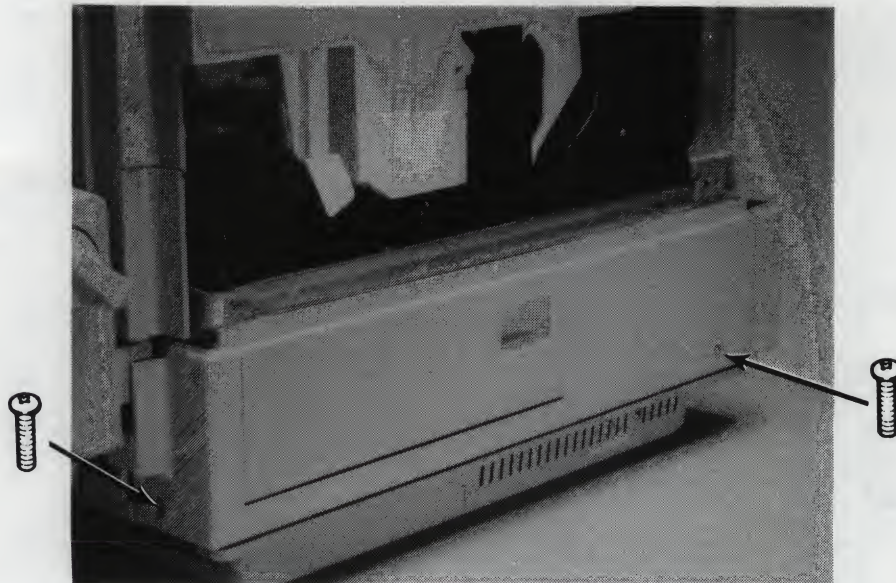
1. Remove the three screws.
2. Remove the duplex gear side cover.



8.12 DUPLEX ACCESS SIDE PANEL

Use the following procedure to remove and replace the duplex access side panel of the DEClaser 2200 printer:

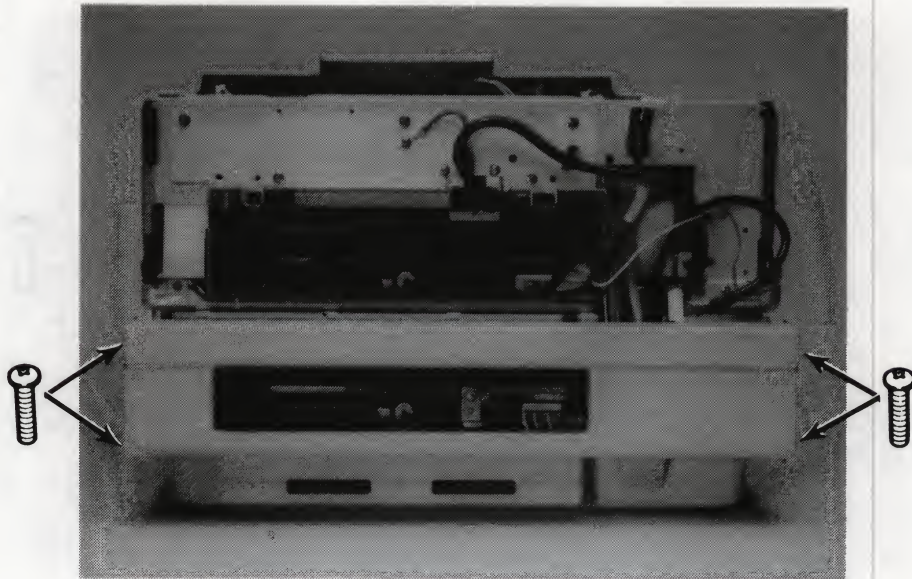
1. Remove the two screws.
2. Remove the duplex access side panel.



8.13 DUPLEX CASSETTE PANEL

Use the following procedure to remove and replace the duplex panel of the DEClaser 2200 printer:

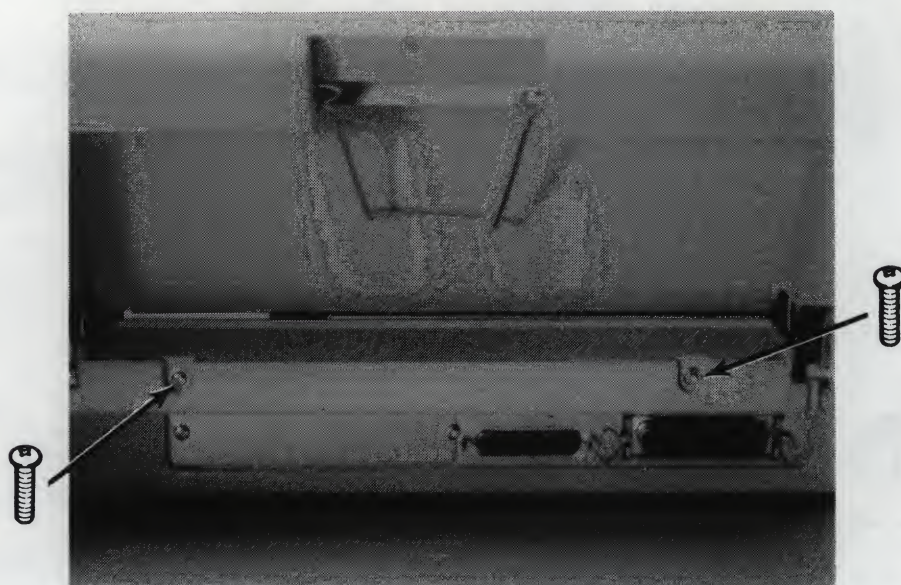
1. Remove the duplex gear side panel as shown in Section 8.11.
2. Remove the duplex access side panel as shown in Section 8.12.
3. Remove the four screws and remove the duplex panel.



8.14 DUPLEX INVERTER PANEL

Use the following procedure to remove and replace the duplex inverter panel of the DEClaser 2200 printer:

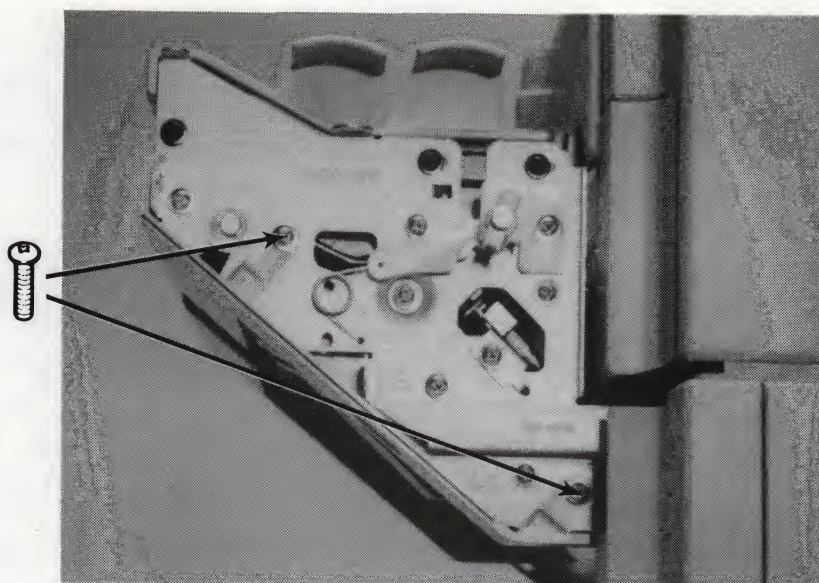
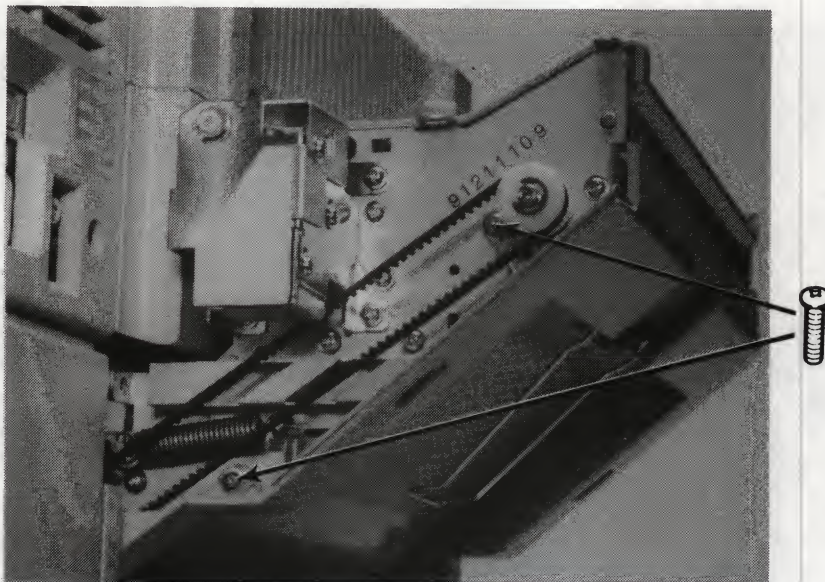
1. Remove the two screws.
2. Remove the duplex inverter panel.



8.14.1 Inverter Paper Guide Panel

Use the following procedure to remove and replace the paper path guide panel on the rear of the inverter unit of the DEClaser 2200 printer:

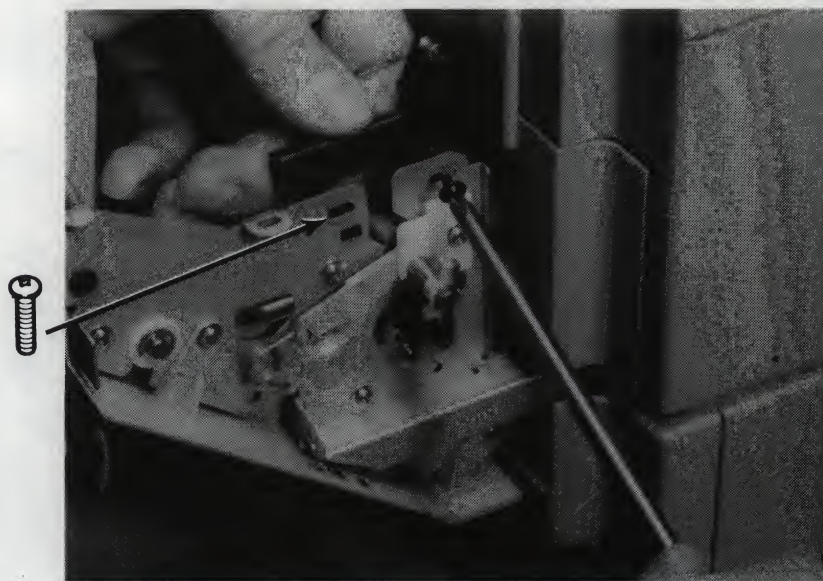
1. Remove the inverter side panels as shown in Section 8.14.3.
2. Remove the four screws that hold the panel to the inverter unit, and remove the panel.



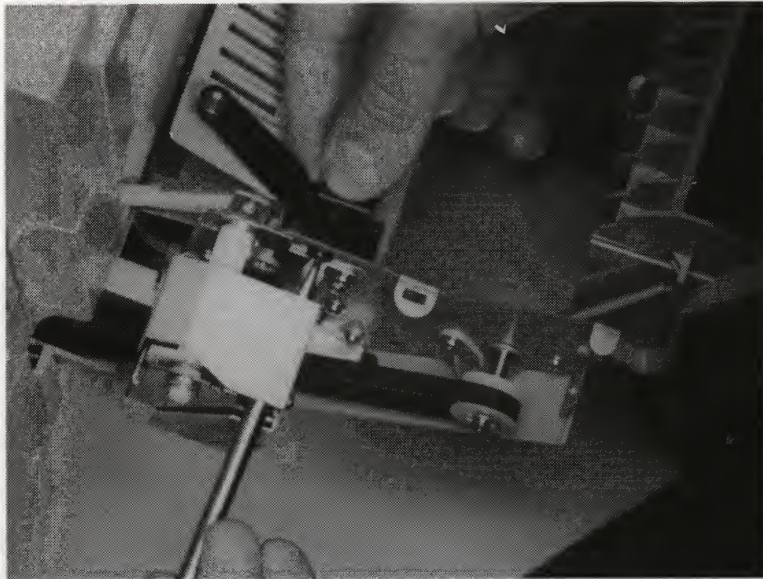
8.14.2 Inverter Support Arms

Use the following procedure to remove and replace the support arms on the inverter unit of the DEClaser 2200 printer:

1. Remove the inverter side panels as shown in Section 8.14.3.
2. Remove the two screws that hold the access side support arm to the bulkhead of the inverter unit, and remove the support arm.



3. Remove the screw that holds the power connector side support arm to the bulkhead of the inverter unit.
4. Allow the inverter unit to hang on its shock spring.



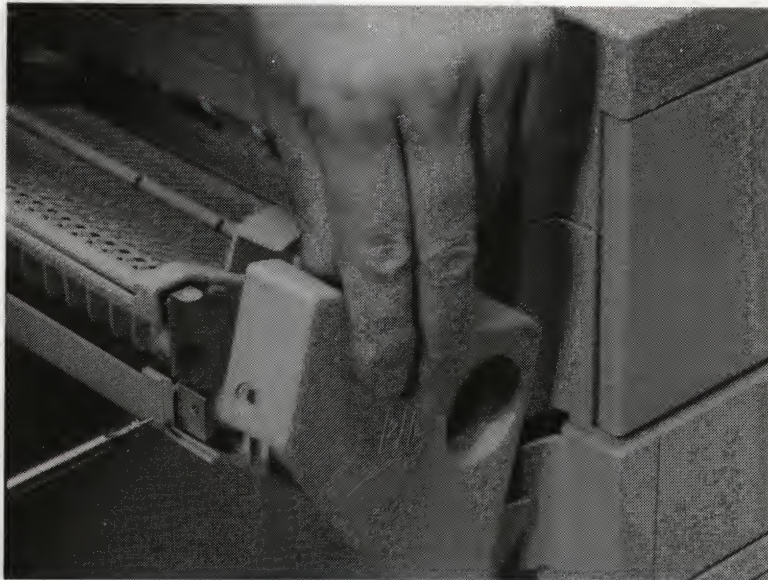
8.14.3 Inverter Side Panels

Use the following procedure to remove and replace the two side panels of the DEClaser 2200 printer:

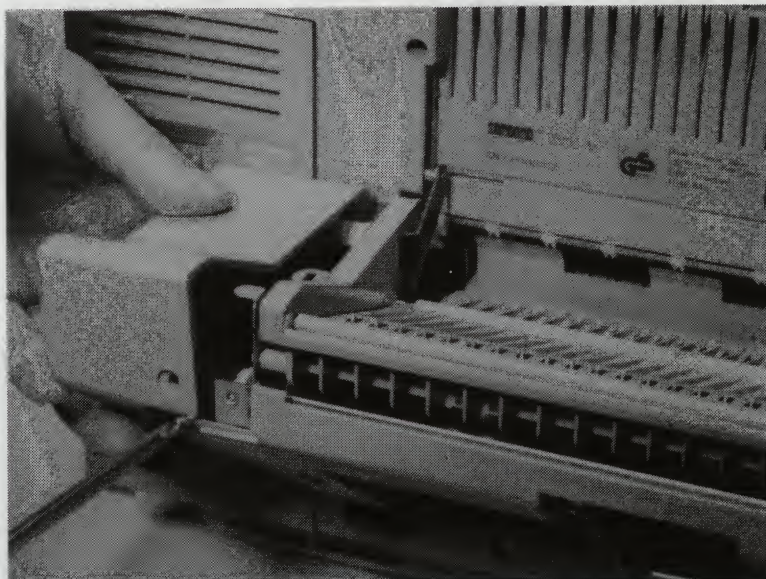
1. Remove the printout selector knob.



2. Remove the screw and remove the inverter front panel.



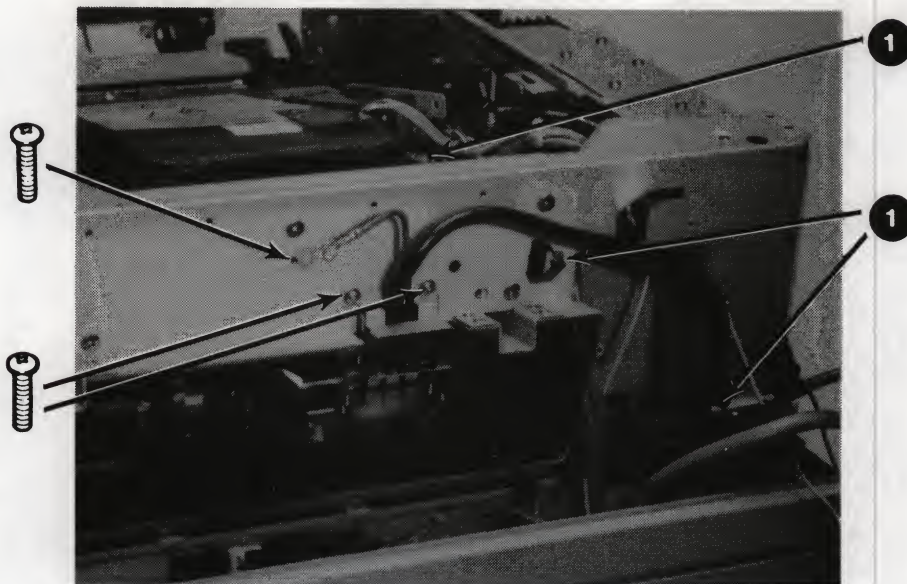
3. Remove the screw and remove the inverter rear panel.



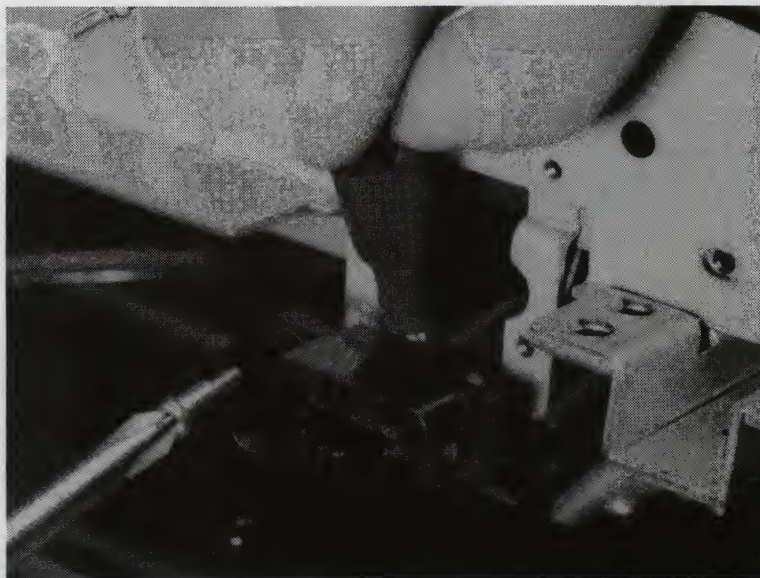
8.14.4 Front Subpanel and Feeder Bracket

Use the following procedure to remove and replace the front subpanel of the DEClaser 2200 printer:

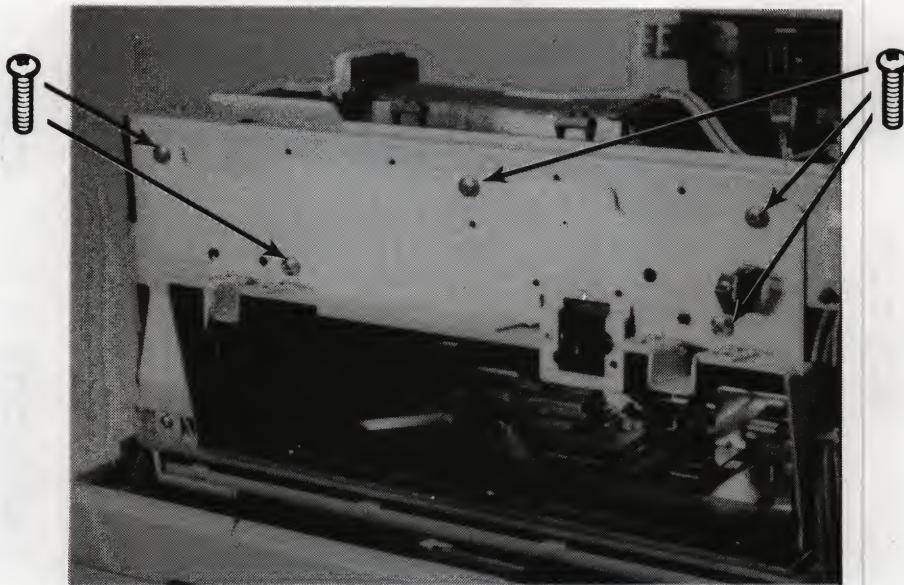
1. Remove the upper cover as shown in Section 8.10.
2. Remove the screw that holds the two ground wires to the front subpanel.
3. Remove the screw that holds the single ground wire to the feeder bracket. The ground wire is from the envelope feeder cable.
4. Release the three snaps ❶ and remove the cables from the clamps.
5. Remove the two screws and remove the metal connector guide.



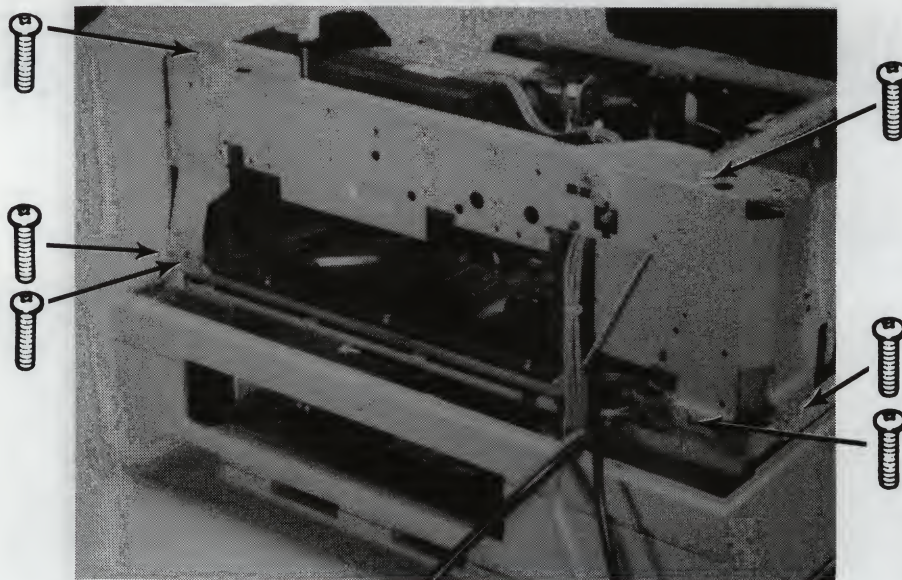
6. Remove the two shoulder screws and remove the connector. The connector is used for the optional envelope feeder.



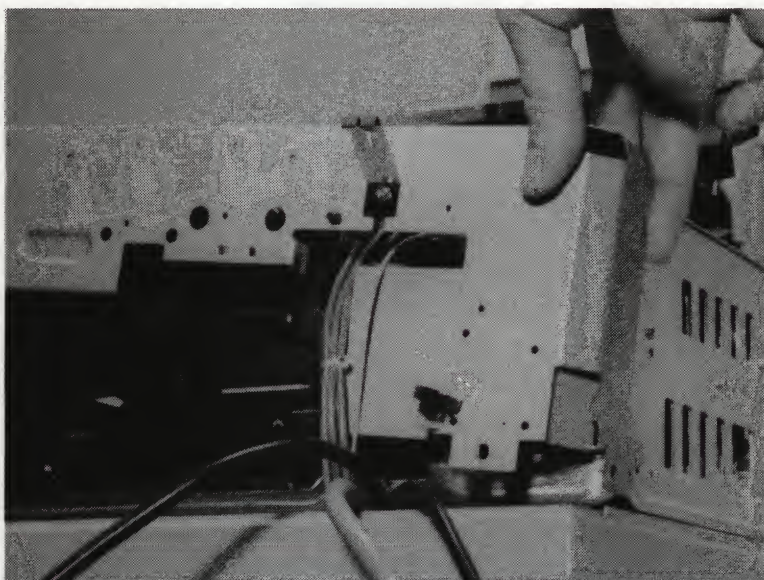
7. Remove the five screws and remove the envelope feeder bracket.



8. Remove the three left-side screws.
9. Remove the three right-side screws.



10. Remove the front subpanel. When replacing the subpanel, make sure the electric and fiber optic cables are routed correctly.



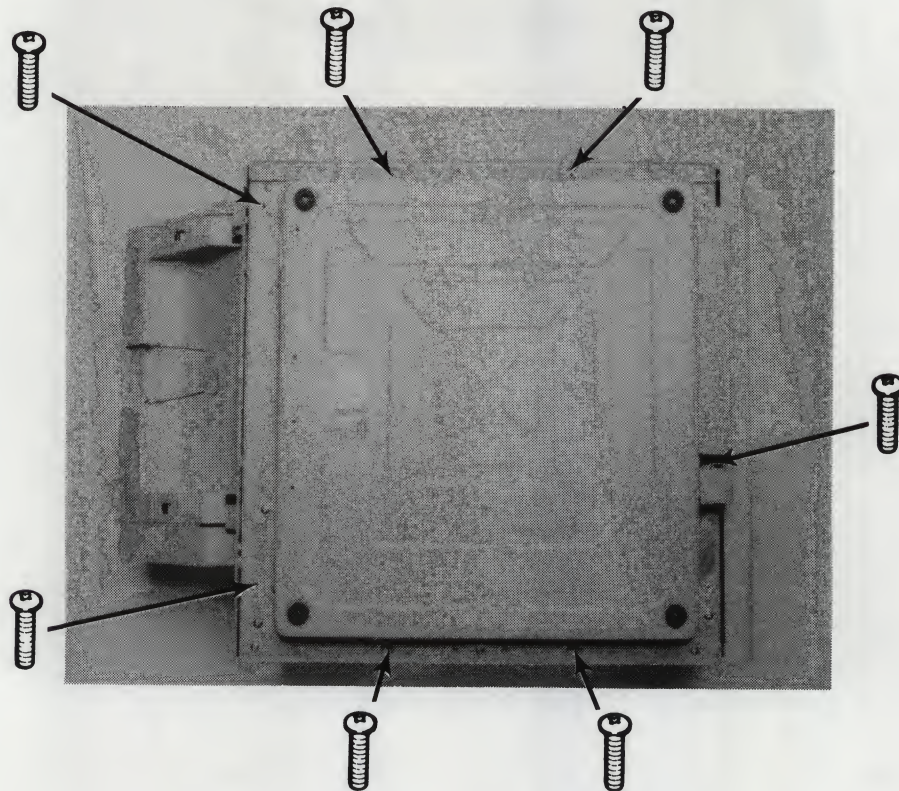
8.15 BOTTOM COVER

Use the following procedure to remove and replace the bottom cover of the DEClaser 2200 printer:

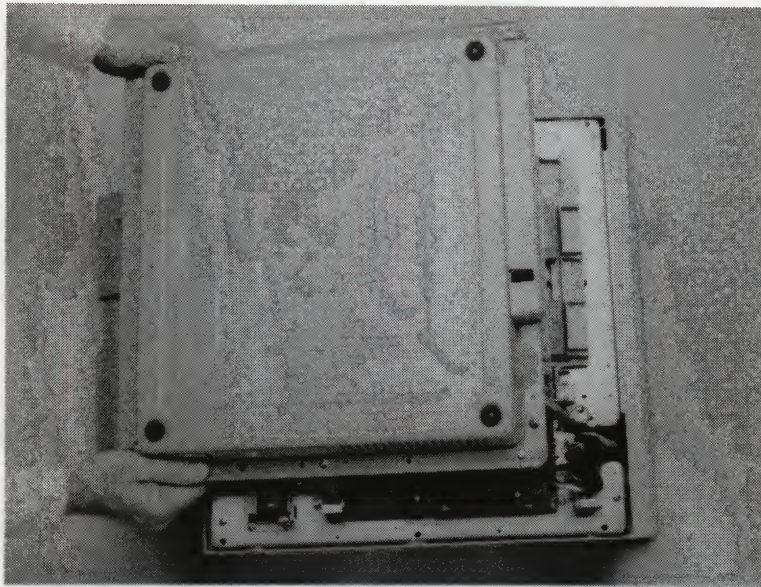
CAUTION

Do not attempt to operate the printer with the bottom cover removed.

1. Remove the paper cassette.
2. Remove the EP-S cartridge as shown in Section 8.16.
3. Remove any connectors from the serial or parallel port connectors.
4. If installed, remove the optional RAM expansion board as shown in Section 8.20.
5. Turn the printer upside down, laying it on its top cover.
6. Remove the seven screws that hold the bottom cover.



7. Remove the bottom cover.



8.15.1 Font Cartridge Guides

Use the following procedure to remove and replace the font cartridge guides on the bottom cover of the DEClaser 2200 printer:

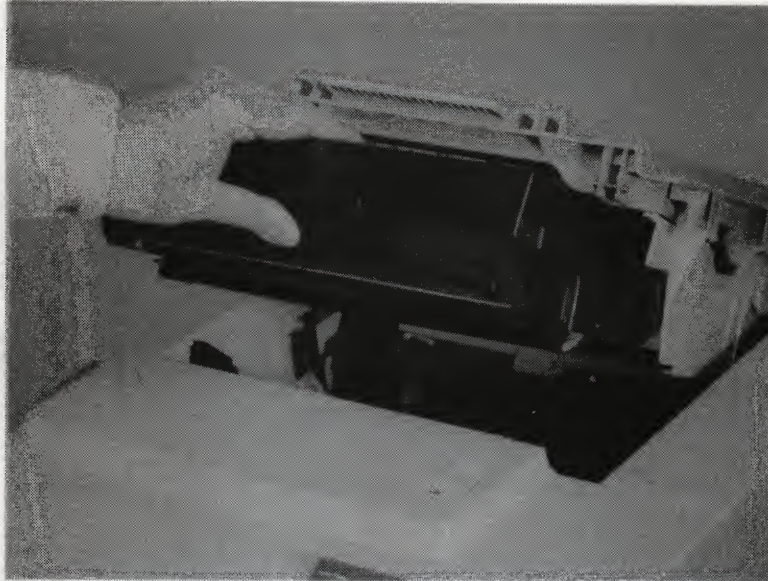
1. Remove the bottom cover as shown in Section 8.15.
2. Remove the three screws that hold the font cartridge guides to the bottom cover, and remove the font cartridge guide assembly.



8.16 EP-S CARTRIDGE

Use the following procedure to remove and replace the EP-S cartridge of the top cover of the DEClaser 2200 printer:

1. Open the top cover.
2. Remove the EP-S cartridge as shown. Do not stand the cartridge on either end or touch the OPC drum.



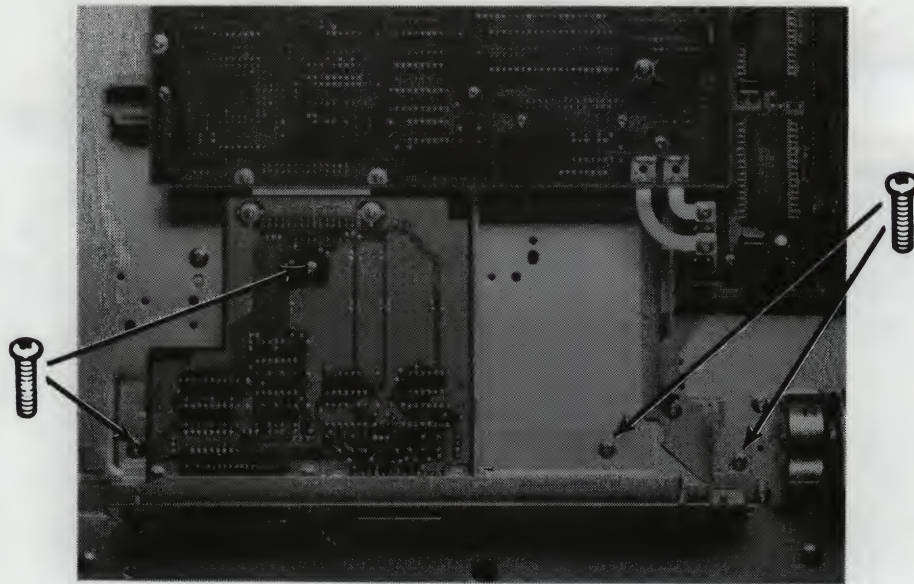
8.17 INPUT/OUTPUT (I/O) BOARD

Use the procedure below to remove and replace the I/O board of the DEClaser 2200 printer. The switchpack mounted on some I/O boards is not used in the field. The correct operational setting for both switches is open.

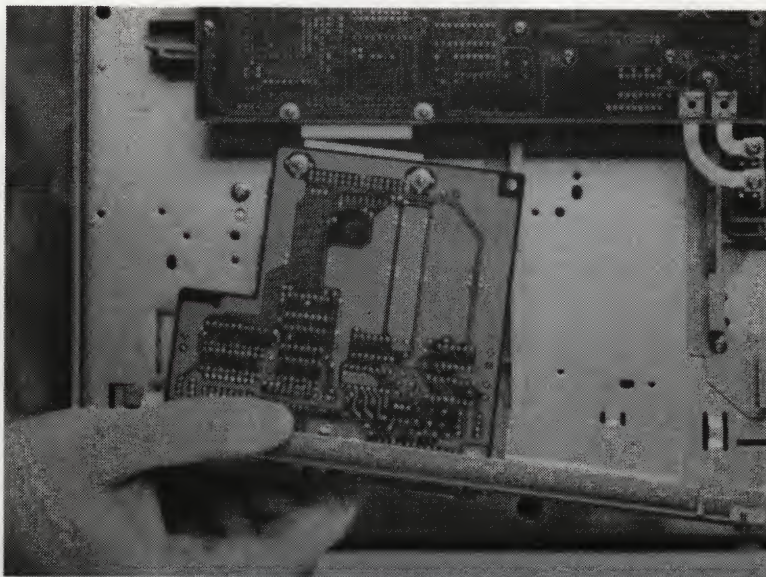
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the bottom cover as shown in Section 8.15.
2. Remove the four screws that hold the I/O board to the baseplate.



3. Disconnect the electrical connector to the video control board, and remove the I/O board.



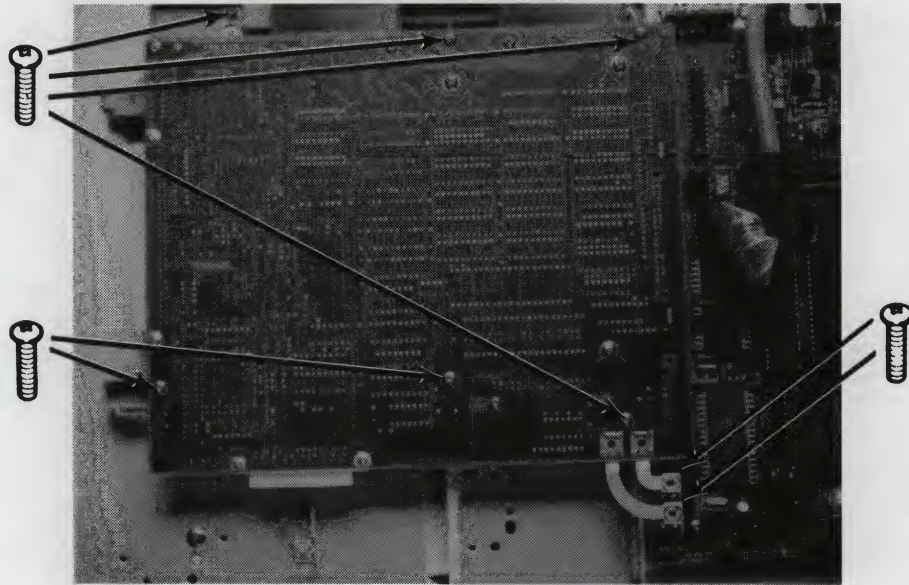
8.18 VIDEO CONTROL BOARD

Use the following procedure to remove and replace the video control board of the DEClaser 2200 printer:

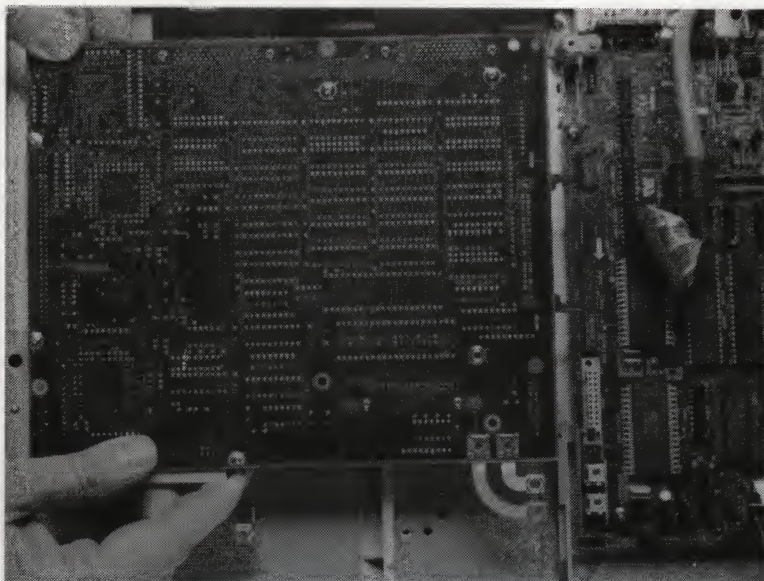
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the EP-S cartridge bottom cover as shown in Section 8.15.
2. Remove the I/O board as shown in Section 8.17.
3. Remove the two screws connecting the two power buses. Make sure to use internal toothed washer/screws to connect the power bus, when you replace the video control board.
4. Disconnect the 34-pin control panel connector.
5. Remove the six screws that hold the video control board to the printer baseplate.



6. Lift the video control board off the alignment pins and remove the board.
7. If you are replacing the video control board, swap the page count integrated circuit (IC) as shown in Section 8.18.1.



8.18.1 Page Count IC

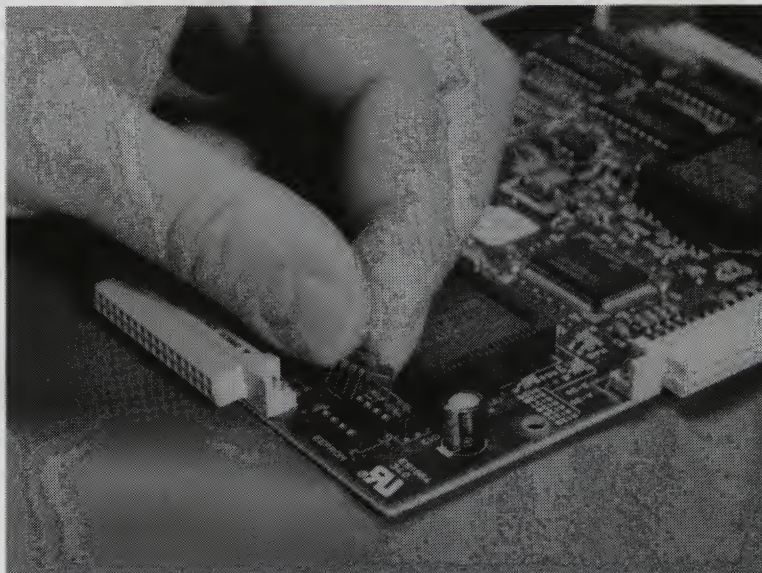
Page count information is stored in the page count memory integrated circuit (IC). The page count is the number of pages the printer has printed. When you replace a video control board, you must remove the page count IC from the defective video control board, and install it on the new video control board.

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

Use the following procedure to remove and replace the page count IC of the video control board of the DEClaser 2200 printer:

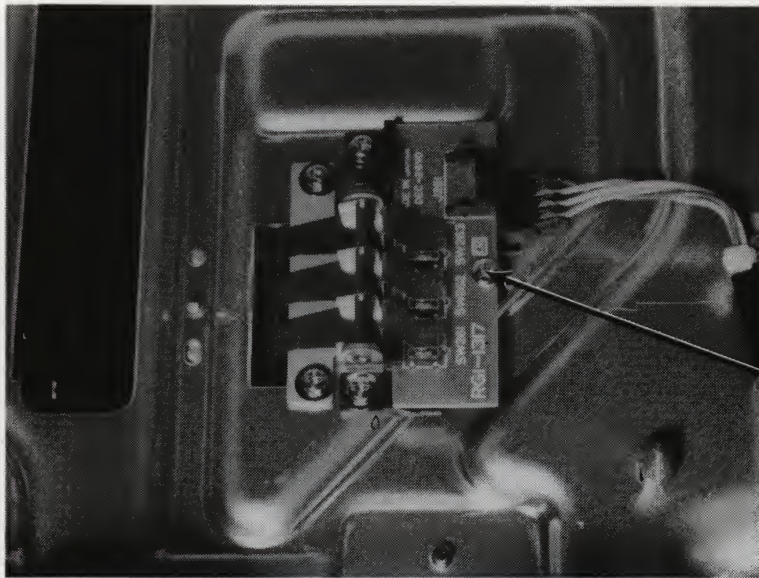
1. Remove the video control board as shown in Section 8.18.
2. Using a suitable tool, gently pry the page count IC loose from the socket.
3. Remove the page count IC.



8.19 UPPER CASSETTE SIZE-SENSING SWITCHES

Use the following procedure to remove and replace the upper cassette size-sensing switches located under the baseplate of the DEClaser 2200 printer:

1. Separate the printer and duplex assemblies as shown in Section 8.6.
2. Set the printer on its side.
3. Disconnect the wire harness plug from the switch circuit board.
4. Remove the screw and remove the switch circuit board.



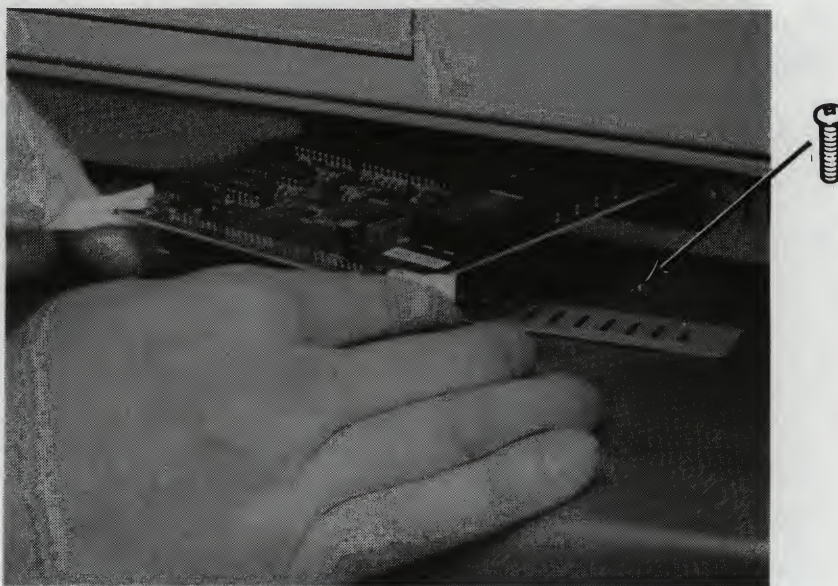
8.20 RAM EXPANSION BOARD

Use the following procedure to remove and replace the optional RAM expansion board of the DEClaser 2200 printer:

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the screw that holds the RAM board access cover to the bottom cover and remove the panel.
2. Simultaneously lift the two handles, and remove the RAM board.



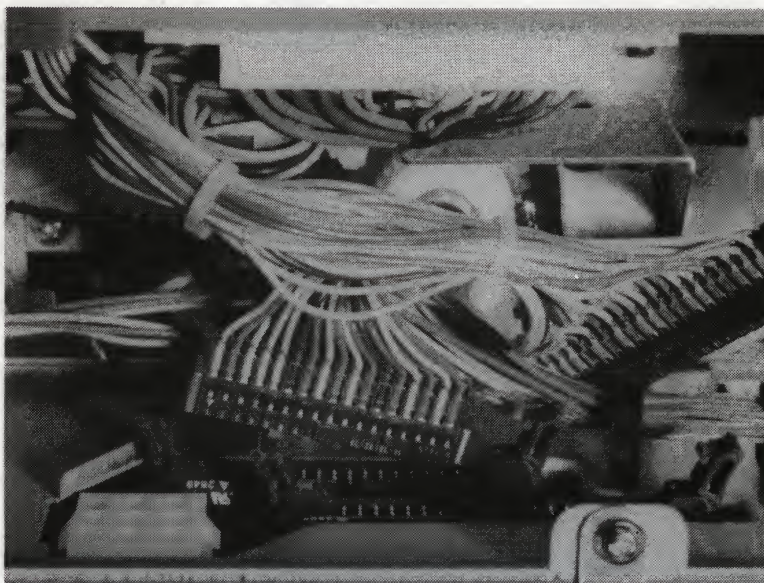
8.21 DC CONTROL BOARD

Use the following procedure to remove and replace the dc control board of the DEClaser 2200 printer:

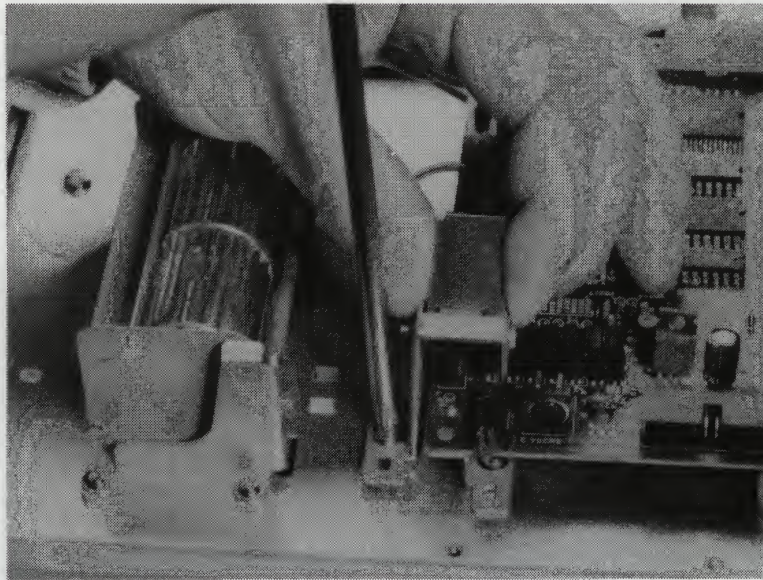
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the duplex gear side panel as shown in Section 8.11.
2. Disconnect the following:
 - a. 9-pin locking connector, J216
 - b. 40-pin connector, J214
 - c. 34-pin connector, J215

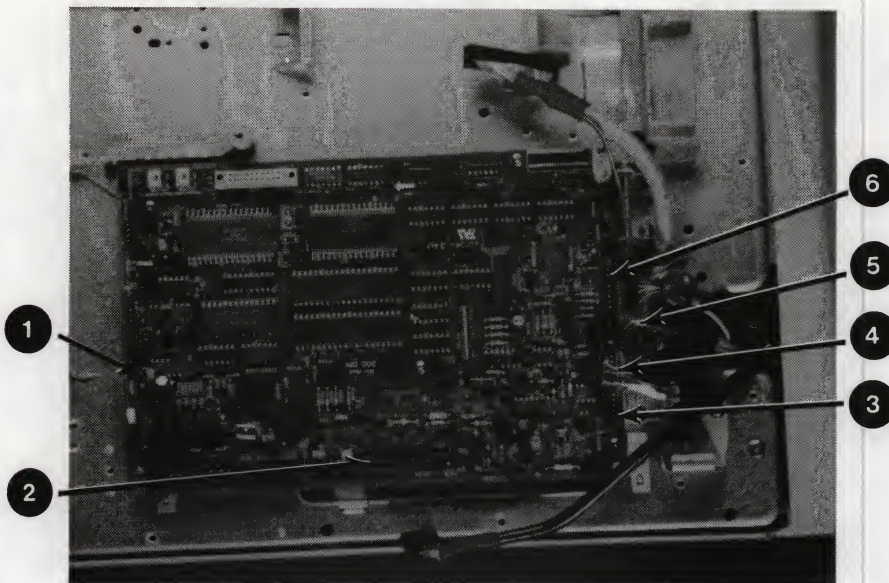


3. Remove the EP-S cartridge bottom cover as shown in Section 8.15.
4. Remove the I/O board as shown in Section 8.17.
5. Remove the video control board as shown in Section 8.18.
6. Loosen the screw that holds the interlock lever assembly.
7. Remove the interlock lever assembly.

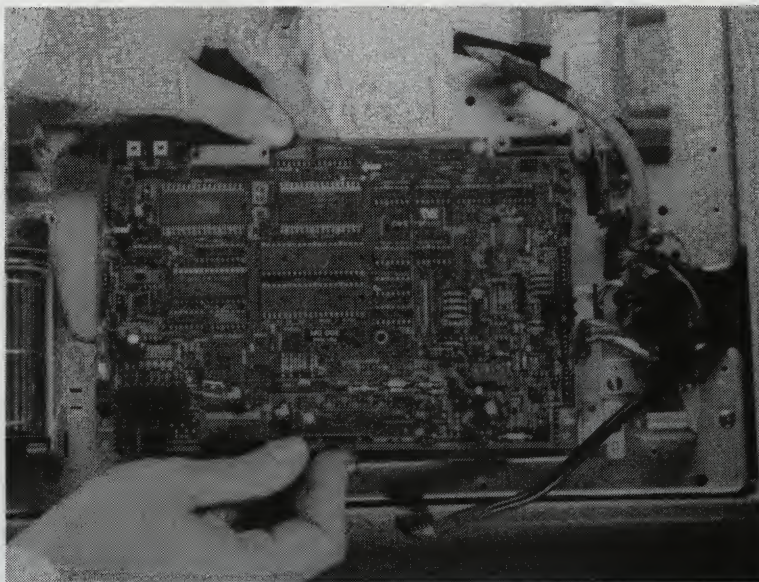


8. Remove the following connectors:

- ① 2-pin J207 FM2
- ② 6-pin J219
- ③ 7-pin J203
- ④ 5-pin J202
- ⑤ Fiber optic J201
- ⑥ 8-pin J217



9. Remove the six hold-down screws.
10. Lift the dc control board off the alignment pins and remove the board.



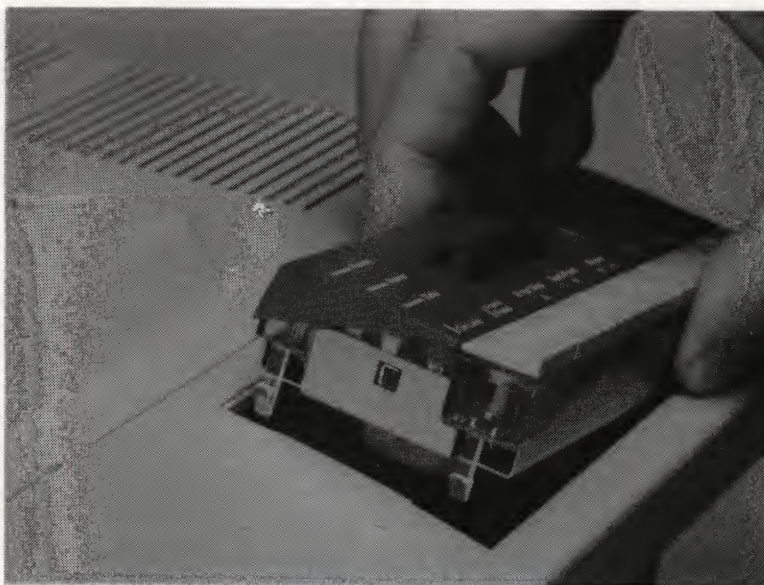
8.22 CONTROL PANEL

Use the following procedure to remove and replace the control panel of the DEClaser 2200 printer:

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the upper cover as shown in Section 8.10.
2. Push each of the four plastic tabs in turn while you push the control panel out through the front of the upper cover.



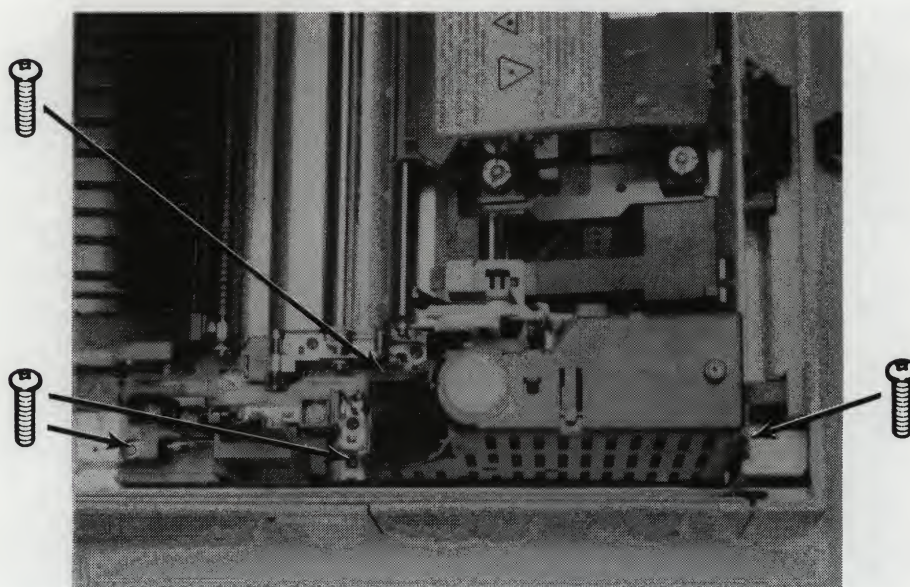
8.23 HIGH-VOLTAGE POWER SUPPLY ASSEMBLY (HVPSA)

Use the following procedure to remove and replace the high-voltage power supply of the DEClaser 2200 printer:

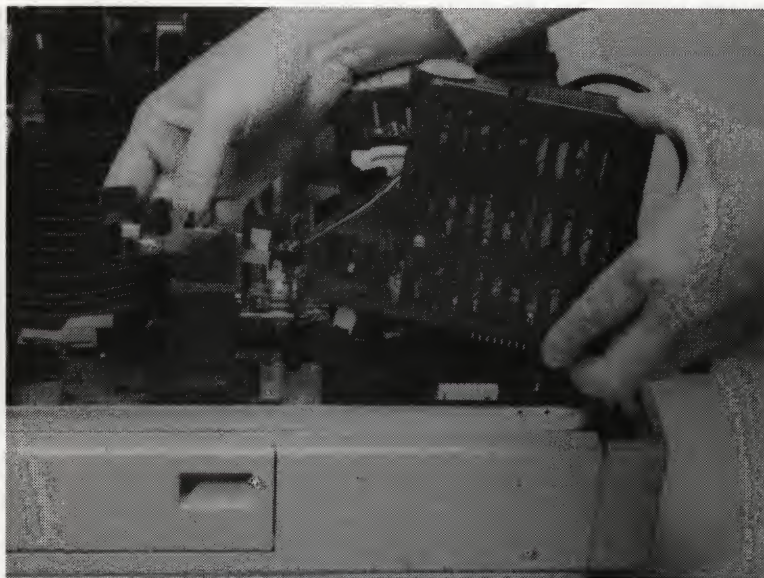
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the upper cover as shown in Section 8.10.
2. Remove the front subpanel as shown in Section 8.14.4.
3. Remove the four screws that hold the HVPSA to the baseplate.



4. Lift, unplug, and remove the HVPSA and connector block from the baseplate. When replacing the HVPSA, make sure it sits squarely on the alignment pins and on the baseplate of the printer.



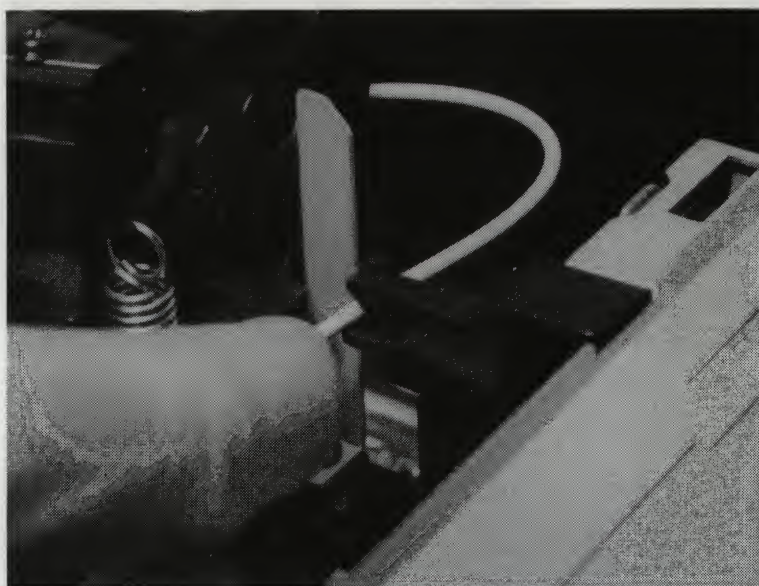
8.24 LOW-VOLTAGE POWER SUPPLY ASSEMBLY (LVPSA)

Use the following procedure to remove and replace the low-voltage power supply assembly (LVPSA) of the DEClaser 2200 printer:

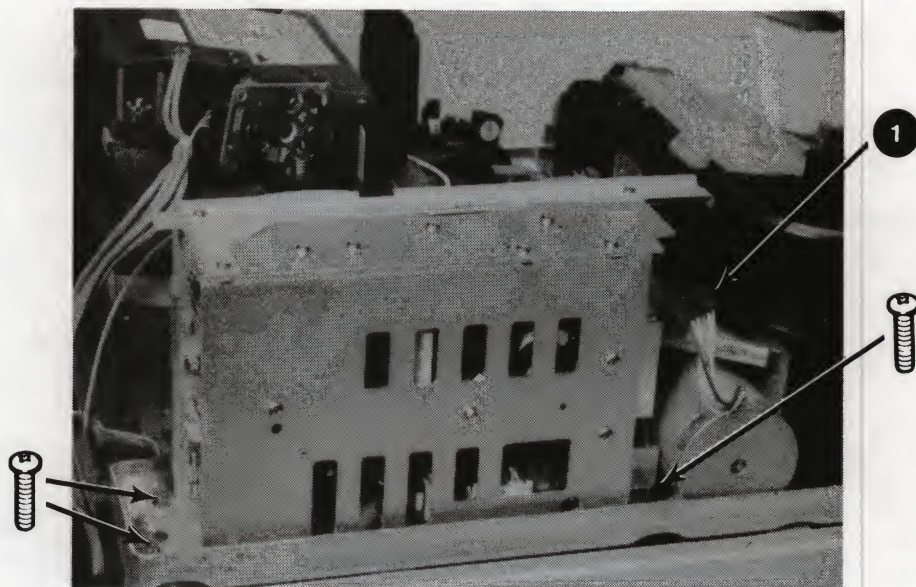
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

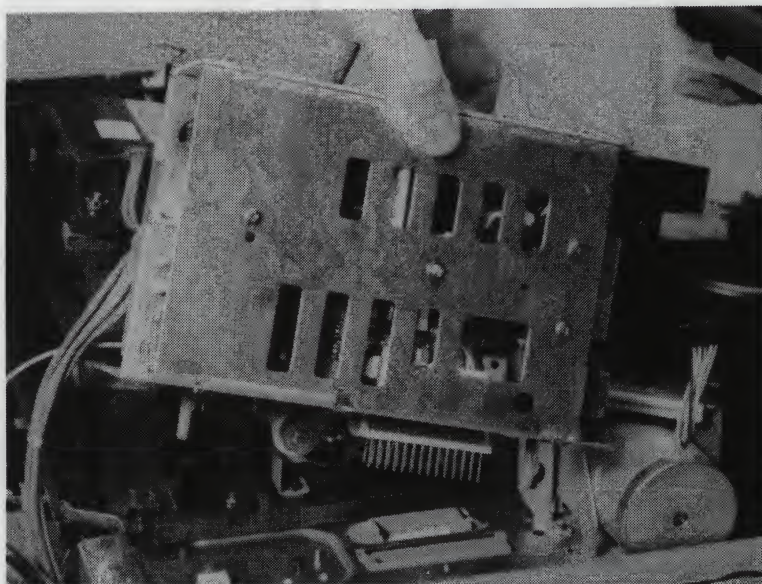
1. Remove the upper cover as shown in Section 8.10.
2. Remove the front subpanel as shown in Section 8.14.4.
3. Remove the fiber optic cable from the restraining clamp.



4. Unplug the main motor cable J3 connector ❶.
5. Remove the three screws that hold the LVPSA to the printer baseplate.



6. Lift up the LVPSA and unplug it from the connectors in the baseplate.
7. Remove the solenoid and sensor board as shown in Section 8.24.1.



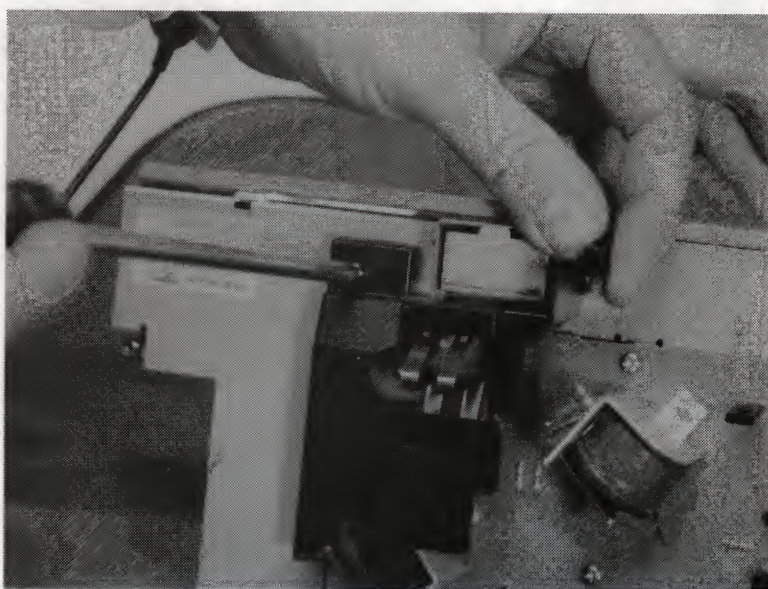
8.24.1 Solenoid and Sensor Board

Use the following procedure to remove and replace the solenoid and sensor board of the LVPSA of the DEClaser 2200 printer:

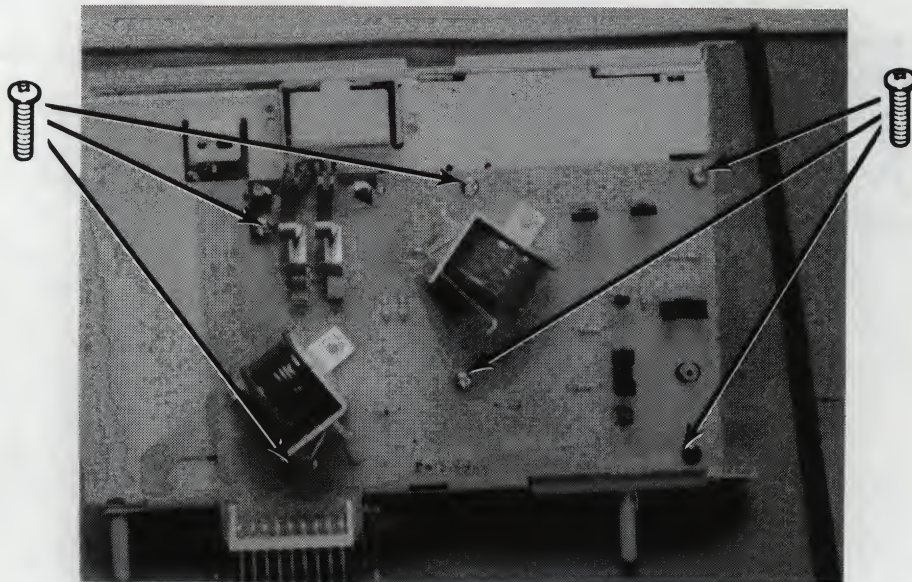
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

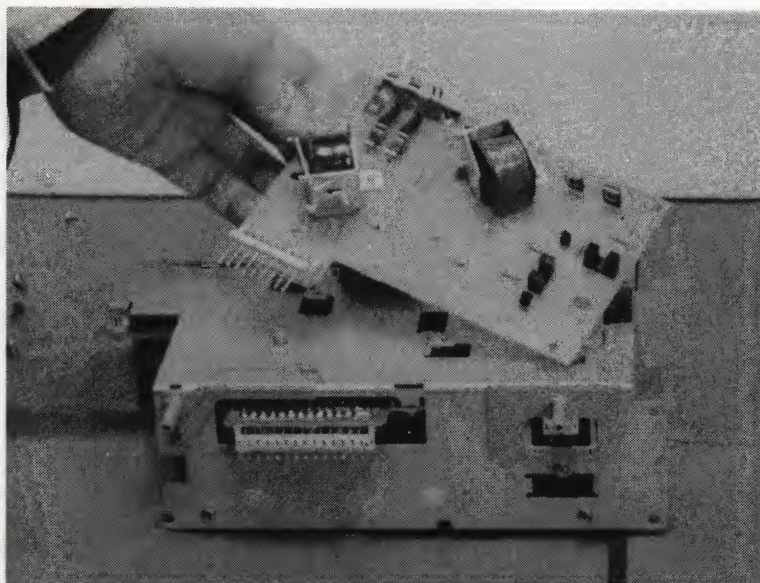
1. Remove the LVPSA as shown in Section 8.24.
2. Remove the screw that holds the plastic shield to the LVPSA bulkhead.
3. Remove the plastic shield.



4. Remove the six screws that hold the board to the LVPSA.



5. Remove the solenoid and sensor board.



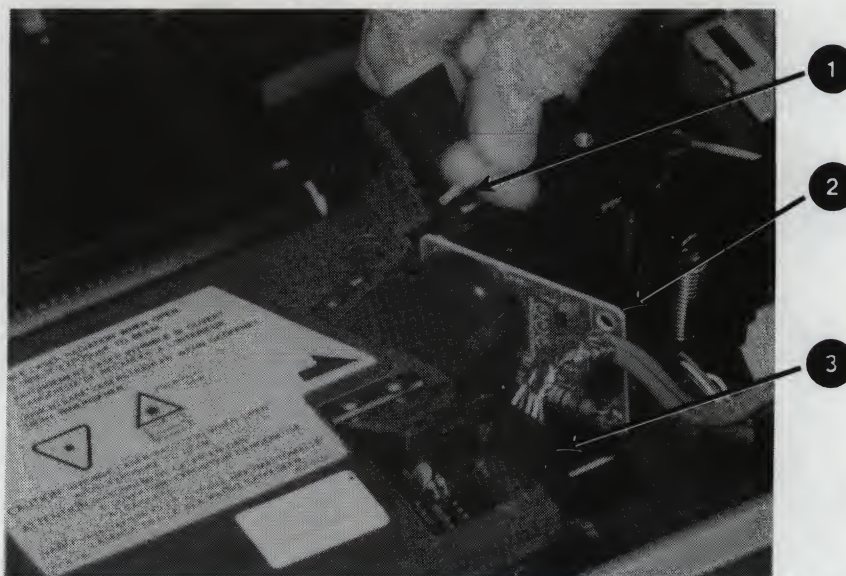
8.25 SCANNER ASSEMBLY

Use the following procedure to remove and replace the scanner assembly of the DEClaser printer:

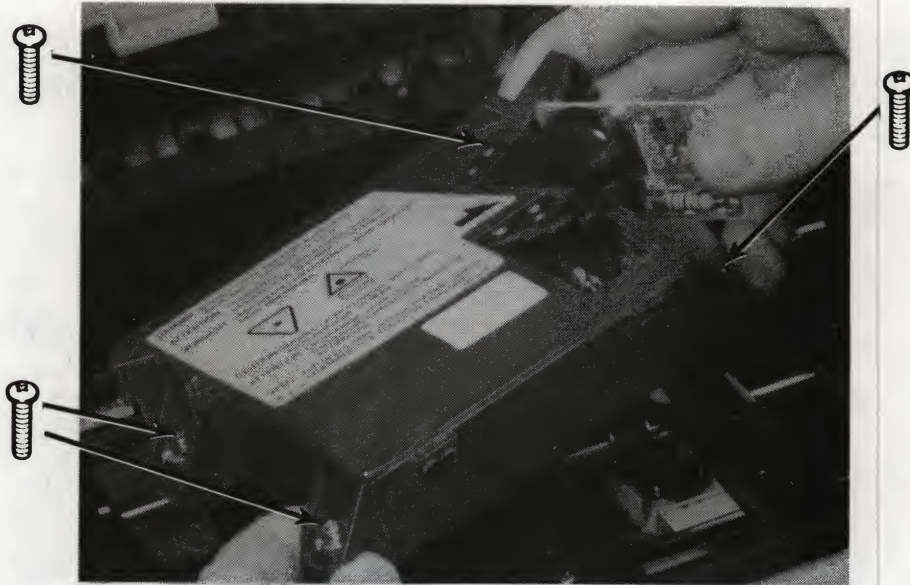
CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

1. Remove the upper cover as shown in Section 8.10.
2. Do the following:
 - ❶ Remove the screw and open the access hatch. Remove the fiber optic light cable as shown below.
 - ❷ Open the access hatch and unplug the 5-pin J401 connector.
 - ❸ Unplug the 4-pin J451 connector.



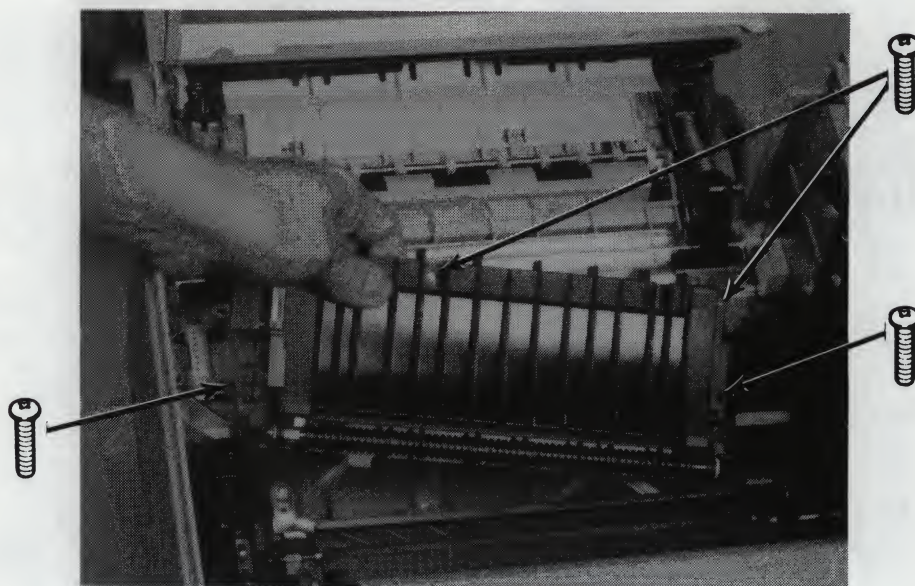
3. Remove the four mounting screws.
4. Remove the scanner assembly.



8.26 FEED GUIDE ASSEMBLY

Use the following procedure to remove and replace the feed guide assembly of the DEClaser 2200 printer:

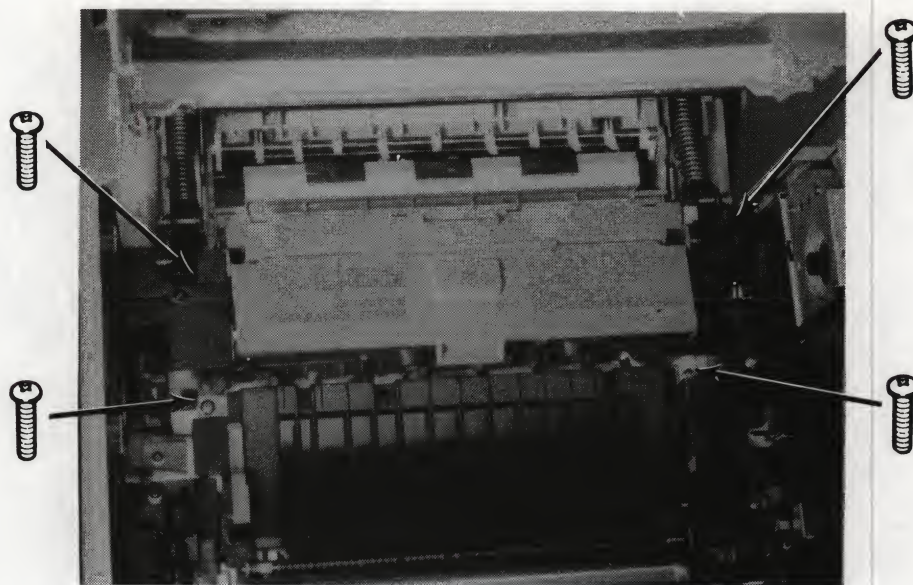
1. Open the top cover.
2. Remove the fixing unit as shown in Section 8.27.
3. Remove the four screws that hold the chassis assembly to the baseplate.
4. Remove the feed guide assembly.



8.27 FIXING UNIT

Use the following procedure to remove and replace the fixing unit of the baseplate of the DEClaser 2200 printer:

1. Open the top cover.
2. Remove the four screws that hold the fixing unit to the baseplate.



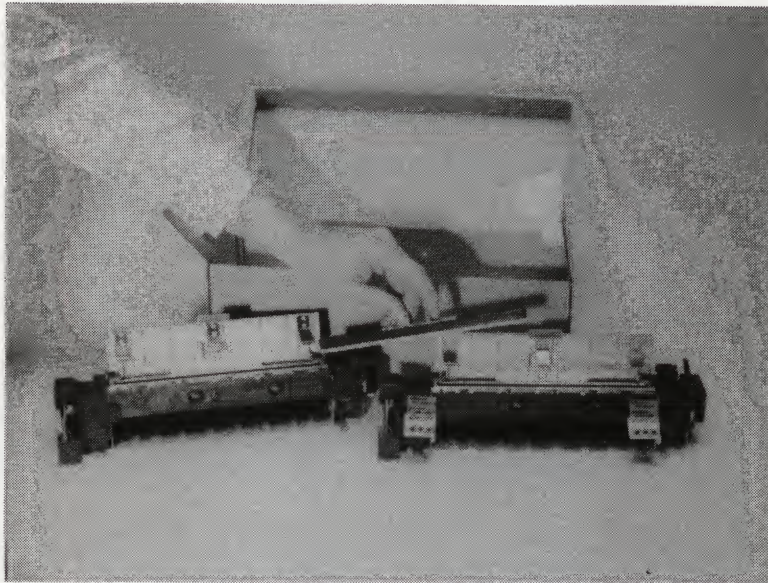
WARNING

The fixing unit is hot and can cause minor skin burns. Be careful when you handle or touch the fixing unit.

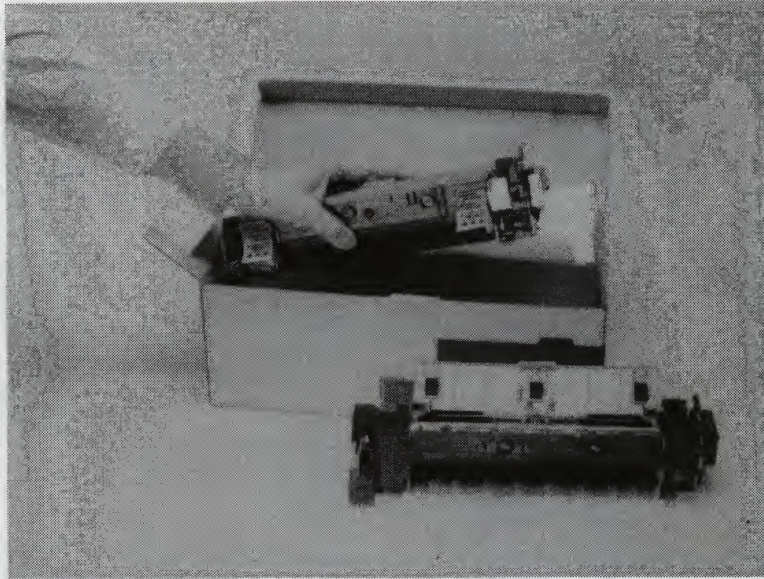
3. Lift, unplug, and remove the fixing unit as shown below. Place the fixing unit on a work surface.



4. Remove the new spare fixing unit from the special shipping container. Place the new unit next to the defective unit on the work surface.
5. Remove the cleaning pad from the defective fixing unit and install the pad in the new spare replacement.



6. Remove the roller separation wedges from the new spare fixing unit and install them in the old defective fixing unit.
7. Place the defective fixing unit in the special shipping container.

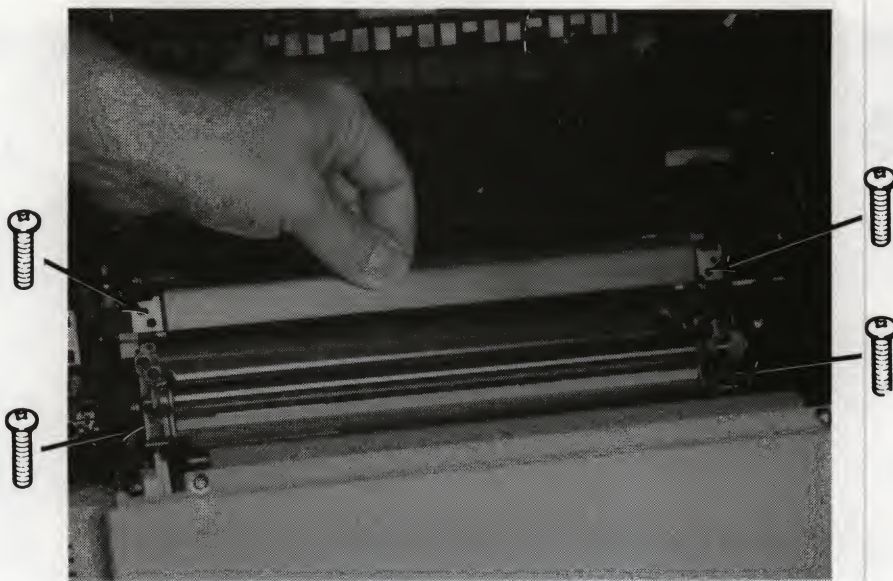


8.28 TRANSFER DRIVE ASSEMBLY

The transfer drive assembly consists of the registration rollers, the feed path between the pickup and registration rollers, and the upper separation pad.

Use the following procedure to remove and replace the transfer drive assembly of the DEClaser 2200 printer:

1. Open the top cover.
2. Remove the upper cassette (if installed).
3. Remove the four screws that hold the transfer drive assembly to the chassis.
4. Remove the guide plate.



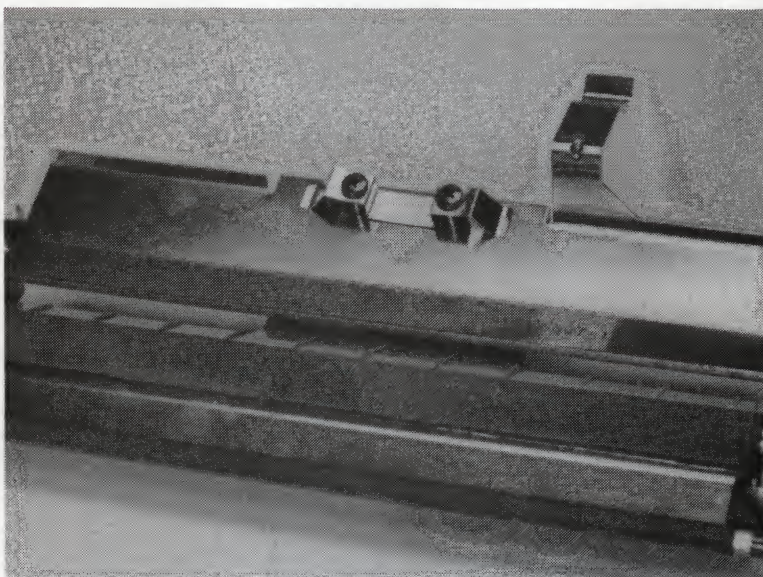
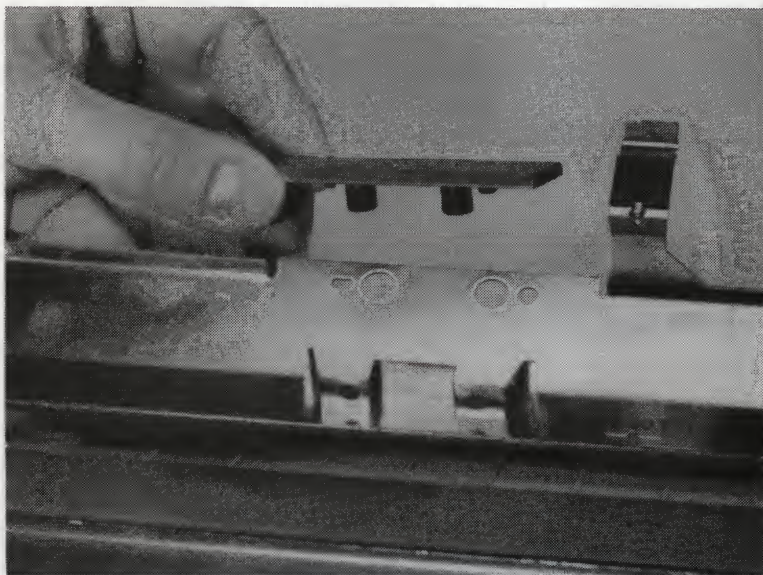
5. Move the ring connector ① clear of the foot flange.
6. Lift and jog the assembly to carefully disengage the registration clutch and solenoid pawl, and then remove the transfer guide assembly.
7. If the spare transfer assembly has no pickup separation pad, swap the pickup separation pad from the defective unit as shown in Section 8.28.1.



8.28.1 Upper Separation Pad

Use the following procedure to remove and replace the upper separation pad of the transfer assembly of the DEClaser 2200 printer:

1. Remove the transfer drive assembly as shown in Section 8.28. Place the assembly upside down on a work surface.
2. Remove the two screws that hold the spring to the pad posts, and remove the separation pad.



8.29 TRANSFER CORONA ASSEMBLY

Use the following procedure to remove and replace the transfer corona assembly of the DEClaser 2200 printer:

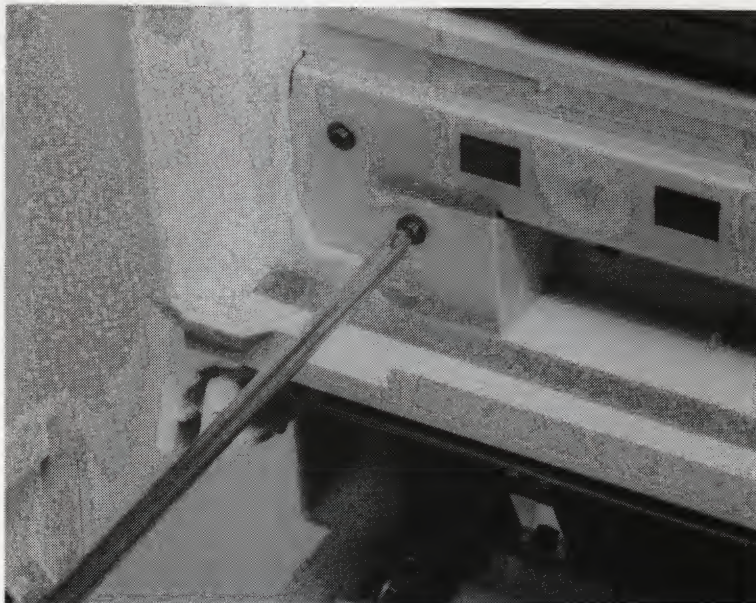
1. Remove the transfer drive assembly as shown in Section 8.28.
2. Remove the upper cover and front subpanel as shown in Section 8.14.4.
3. Remove the HVPSA as shown in Section 8.23.
4. Remove the two screws that hold the transfer corona assembly to the chassis.
5. Remove the transfer corona assembly.



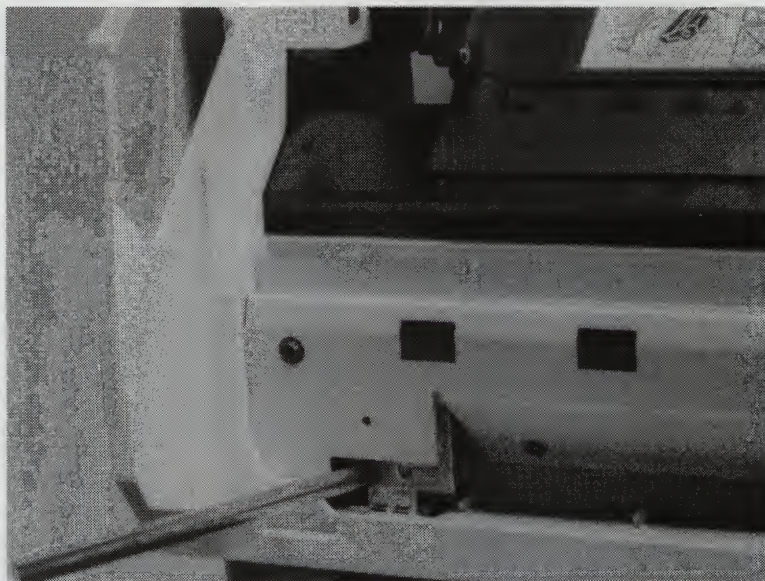
8.30 PRECONDITIONING LAMP

Use the following procedure to remove and replace the preconditioning lamp assembly of the upper unit of the DEClaser 2200 printer:

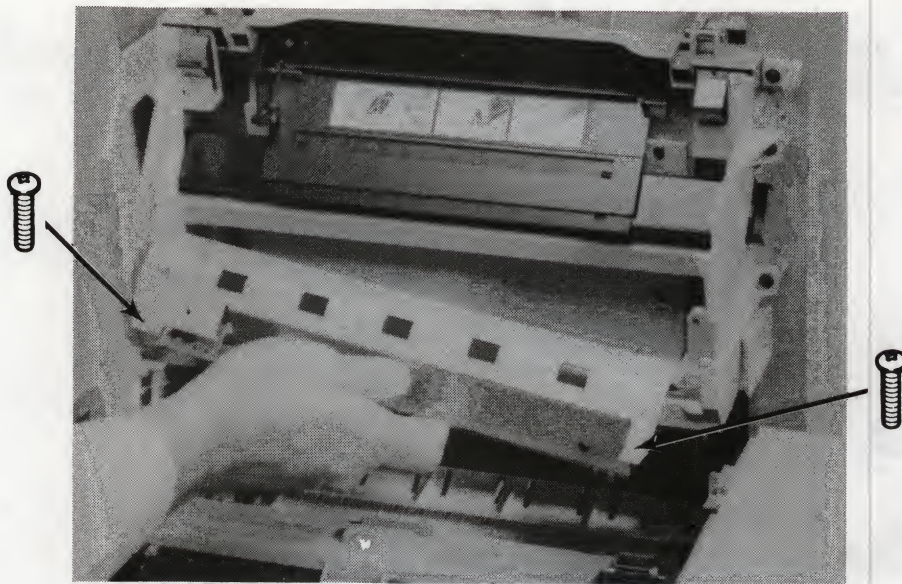
1. Open the top cover.
2. Remove the EP-S cartridge as shown in Section 8.16.
3. Remove the screw and the protective flange.



4. Remove the two screws that connect the power bus.



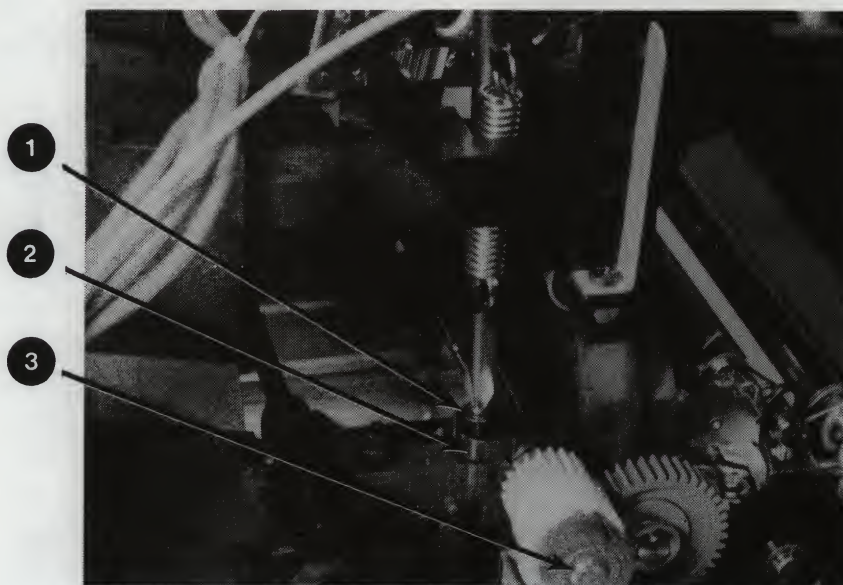
5. Remove the two screws that hold the lamp assembly to the top cover, and remove the lamp assembly.



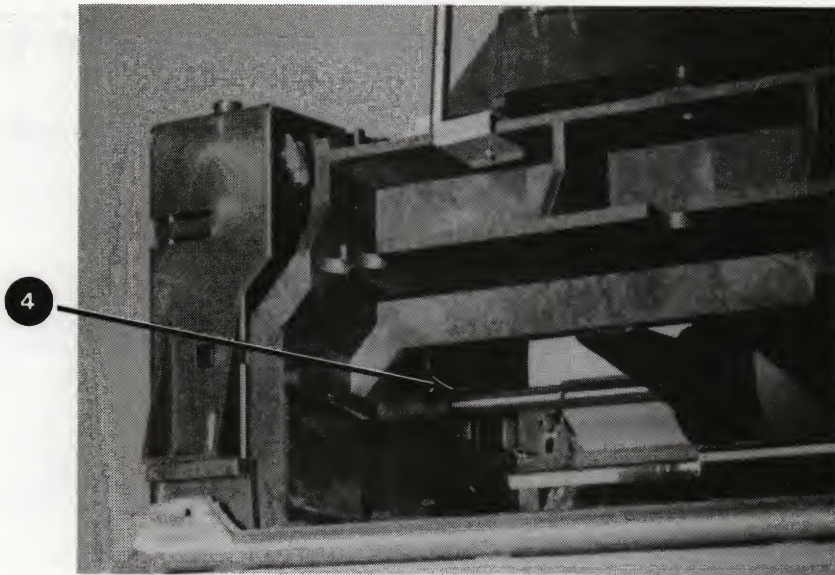
8.31 UPPER PICKUP ROLLER ASSEMBLY

Use the following procedure to remove and replace the upper pickup roller assembly of the DEClaser 2200 printer:

1. Remove the LVPSA as shown in Section 8.24.
2. Remove the screw ❶ that holds the clutch end ❷ of the pickup roller shaft to the chassis ❸.



3. Remove the screw ④ that holds the HVPSA end of the pickup roller shaft to the chassis.

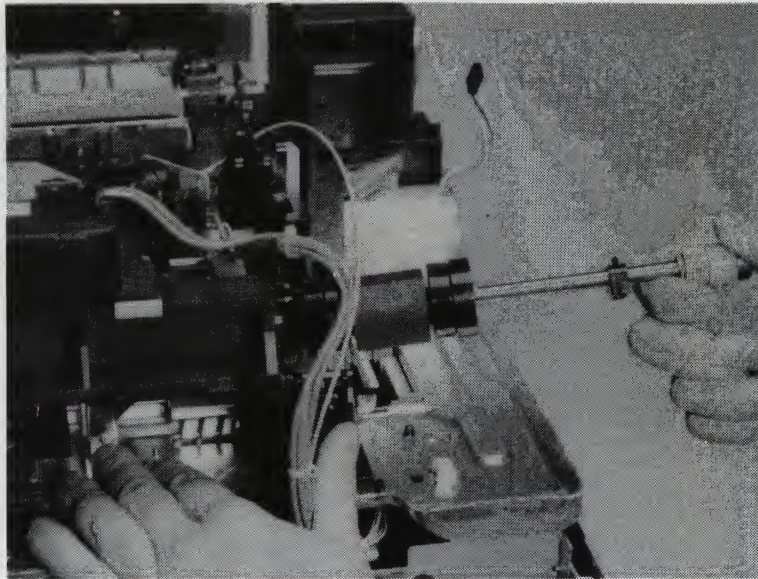


4. Carefully work the pickup roller assembly out of the printer in the direction shown.

CAUTION

Cuts or grease contamination can damage the surfaces of the pickup or auxiliary rollers during removal or replacement. Be careful when handling the pickup roller assembly.

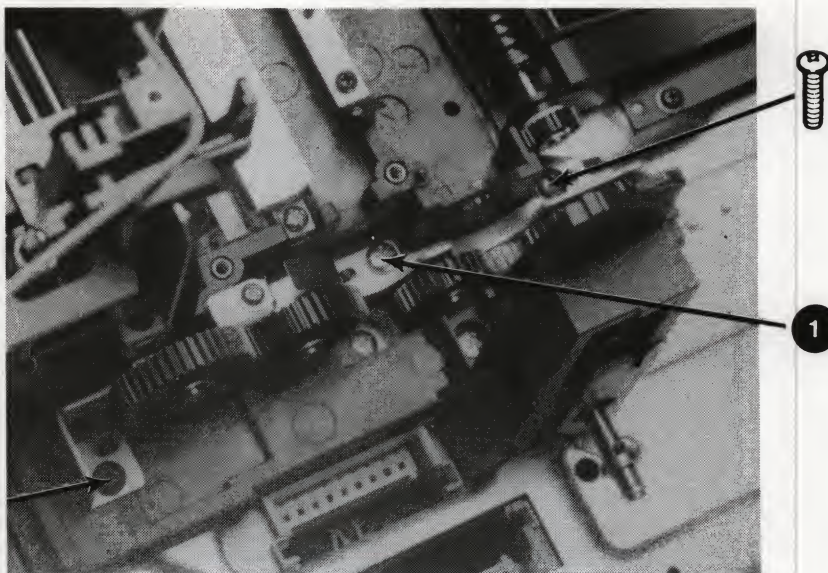
The pickup roller clutch cannot be replaced in the field. A special tool is used to align the clutch on the pickup roller shaft.



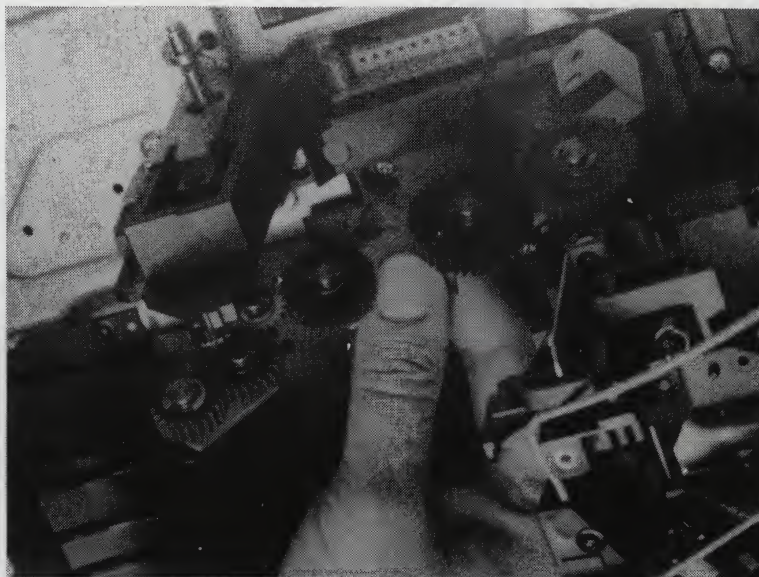
8.32 INTERMEDIATE GEAR ASSEMBLY

Use the procedure below to remove and replace the intermediate gear assembly of the DEClaser 2200 printer.

1. Remove the following components:
 - a. Upper cover as shown in Section 8.10
 - b. Transfer drive assembly as shown in Section 8.28
 - c. Subpanel and HVPSA as shown in Section 8.23
 - d. Transfer corona assembly as shown in Section 8.29
 - e. LVPSA as shown in Section 8.24
 - f. Fixing unit as shown in Section 8.27
 - g. AC inlet assembly as shown in Section 8.34
 - h. Main motor assembly as shown in Section 8.37
 - i. Pickup roller assembly as shown in Section 8.31
 - j. The inside OPC drum drive gear as shown in Section 8.32.1
2. Remove the three screws that secure the gear train. The length of the center screw ❶ is approximately 19 mm (3/4 in).



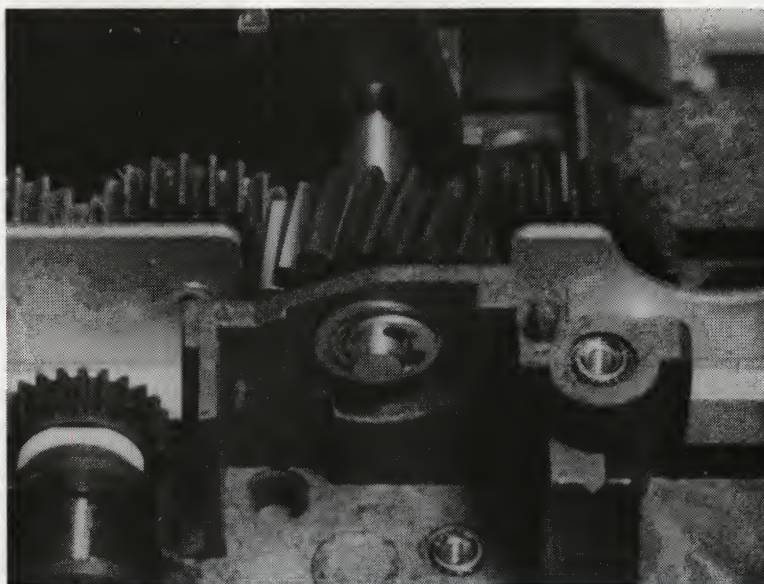
3. Remove the gear train assembly.



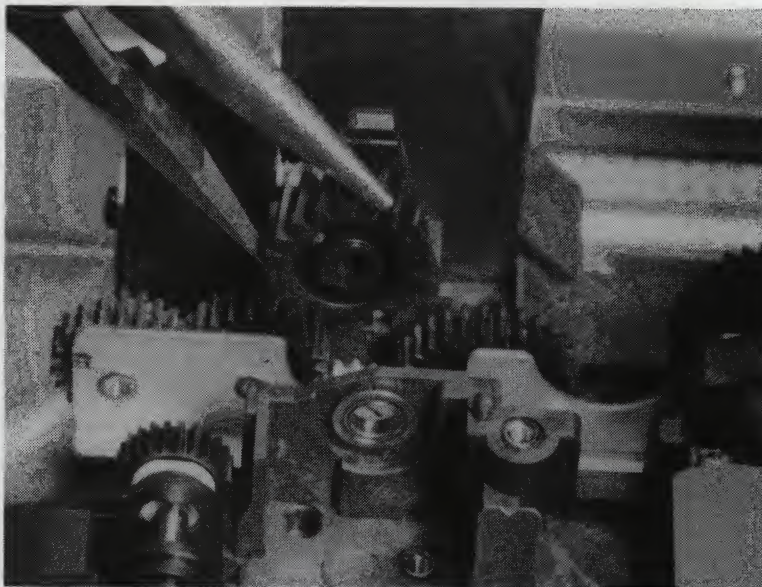
8.32.1 Inside OPC Drum Drive Gear

Use the procedure below to remove and replace the inside drive gear of the OPC drum drive shaft of the DEClaser 2200 printer.

1. Remove the following components:
 - a. Upper cover as shown in Section 8.10
 - b. Transfer drive assembly as shown in Section 8.28
 - c. HVPSA as shown in Section 8.23
 - d. Transfer corona assembly as shown in Section 8.29
 - e. LVPSA as shown in Section 8.24
2. Remove the E-ring located inside the drive shaft.



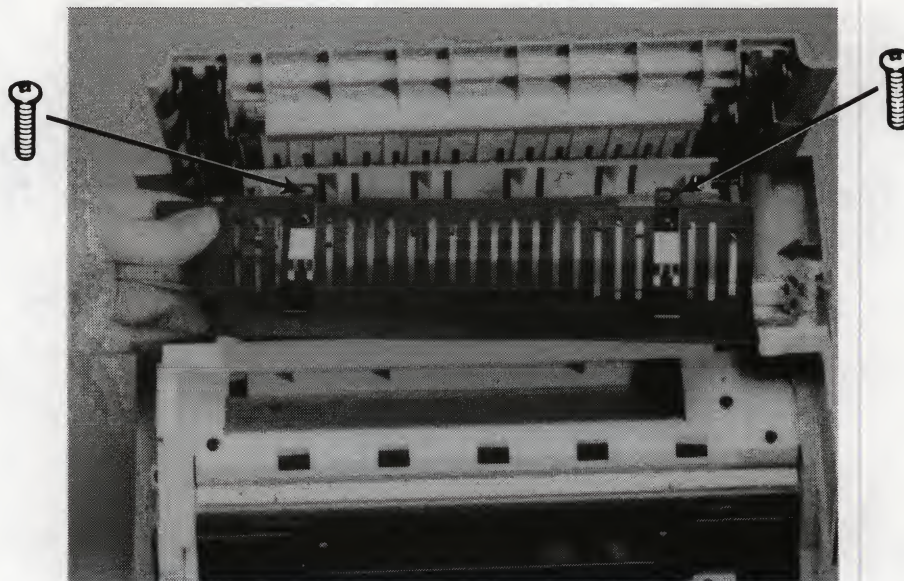
3. Use a small screwdriver or other suitable tool to push and remove the shaft.
4. Remove the inside OPC drum drive gear.



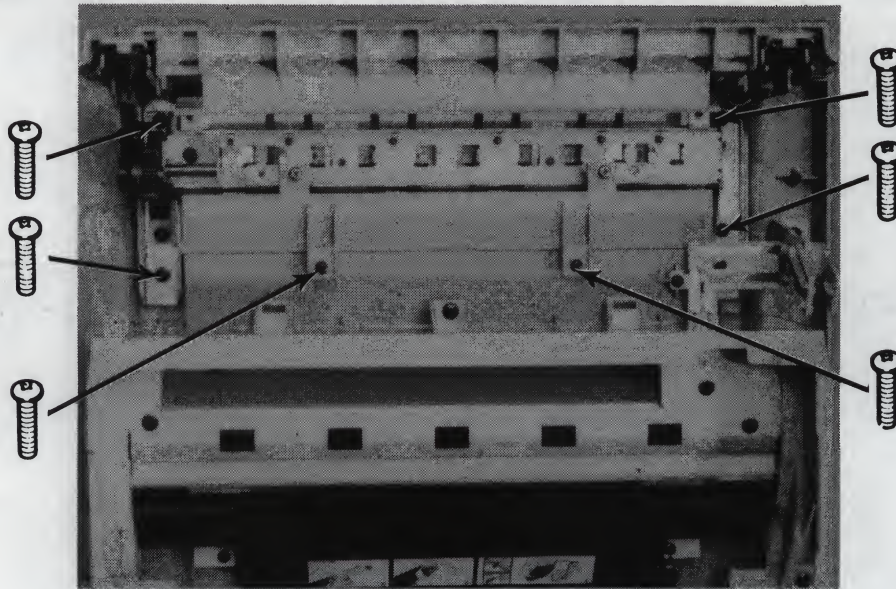
8.33 OUTPUT ROLLER ASSEMBLY

Use the following procedure to remove and replace the output roller assembly of the top cover output tray of the DEClaser 2200 printer:

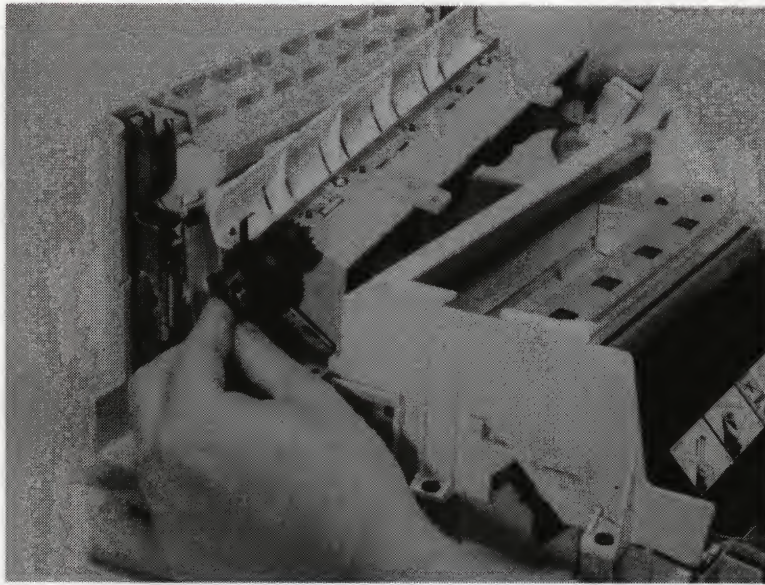
1. Remove the top cover as shown in Section 8.5, and place it upside down on a work surface.
2. Remove the two screws from the fixing unit hold-down plate.
3. Remove the fixing unit hold-down plate.



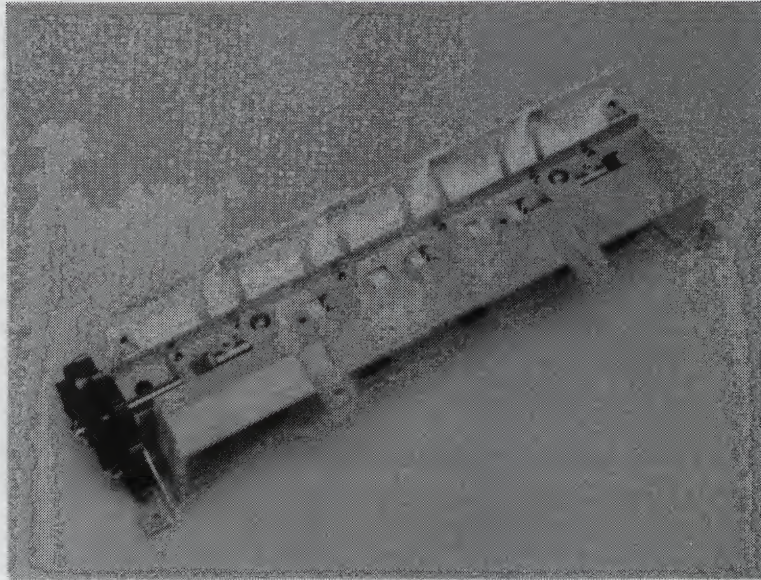
4. Remove the two plastic threaded screws that hold the tray plate to the top cover.
5. Remove the four screws that hold the assembly to the mounting bulkhead.



6. Remove the roller assembly and tray plate. Place the assembly on a work surface.



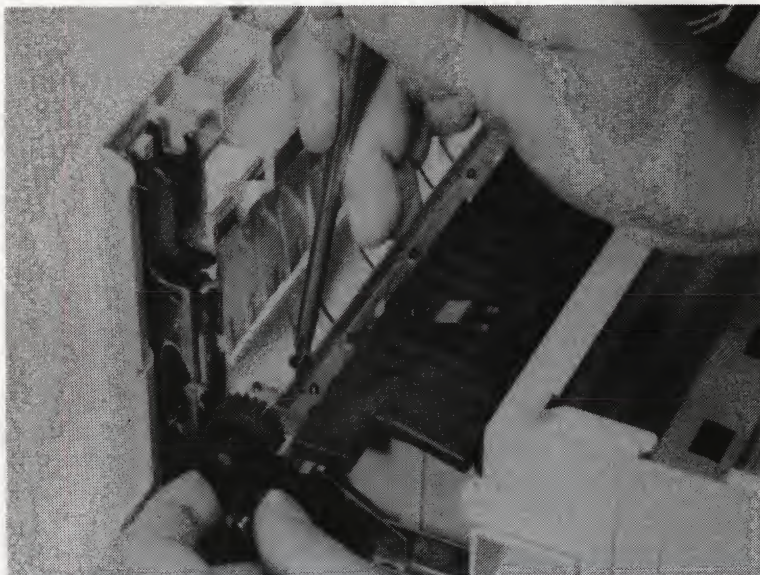
7. Remove the two shoulder screws, and separate the tray plate from the output roller assembly.



8.33.1 Output Roller Drive Gears

Use the following procedure to remove and replace the gear assembly that drives the rollers in the top cover output tray:

1. Remove the top cover as shown in Section 8.5, and place it upside down on a work surface.
2. Remove the screw that holds the assembly to the bulkhead, and remove the assembly.



8.34 AC INLET ASSEMBLY

NOTE

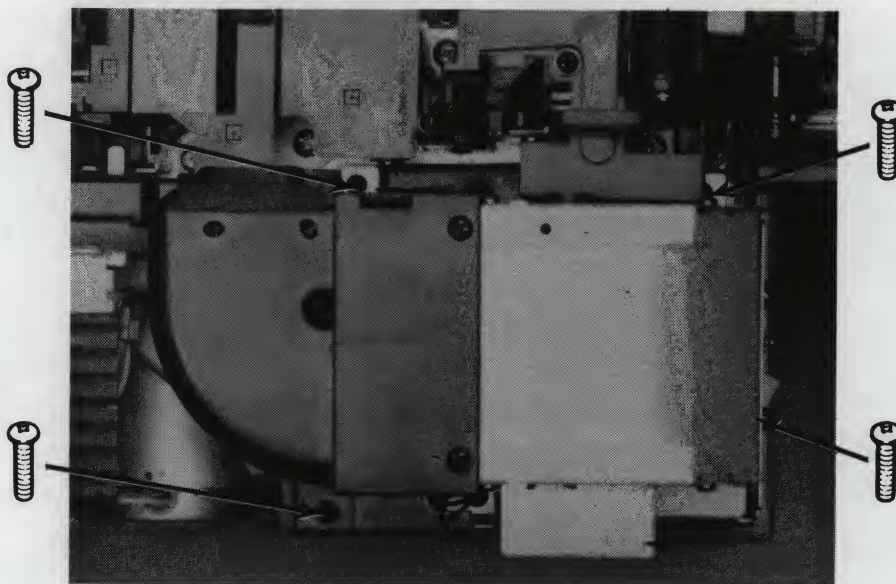
If you are replacing the ac inlet assembly to fix a 50 SERVICE display fault, be aware that 10 minutes of power-down time is required to clear a 50 SERVICE fault.

Use the following procedure to remove and replace the ac inlet assembly:

CAUTION

Use the standard antistatic equipment and procedures when you handle this sensitive electronic component.

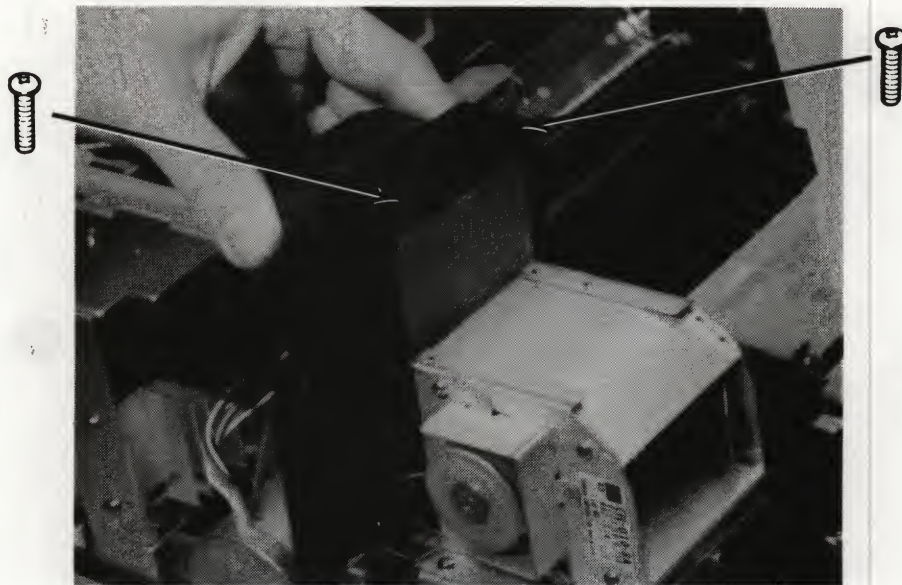
1. Remove the fixing unit as shown in Section 8.27.
2. Remove the upper cover as shown in Section 8.10.
3. Remove the four screws that hold the inlet assembly to the baseplate.
4. Lift, unplug, and remove the ac inlet assembly.



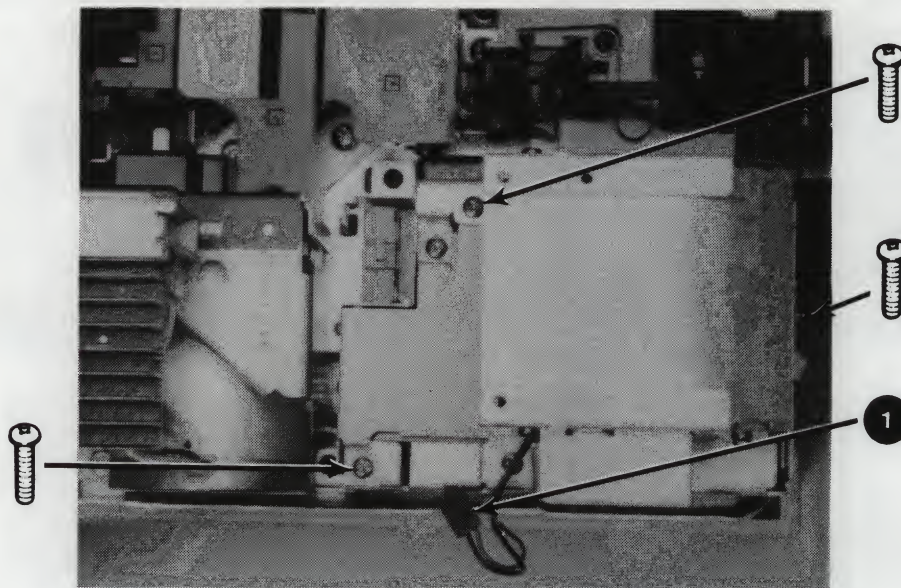
8.35 MAIN FAN (FM1)

Use the following procedure to remove and replace the main fan (FM1) of the DEClaser 2200 printer:

1. Remove the two screws that hold the ozone filter housing.
2. Slide out the ozone filter housing from the holding tab, and remove the housing.



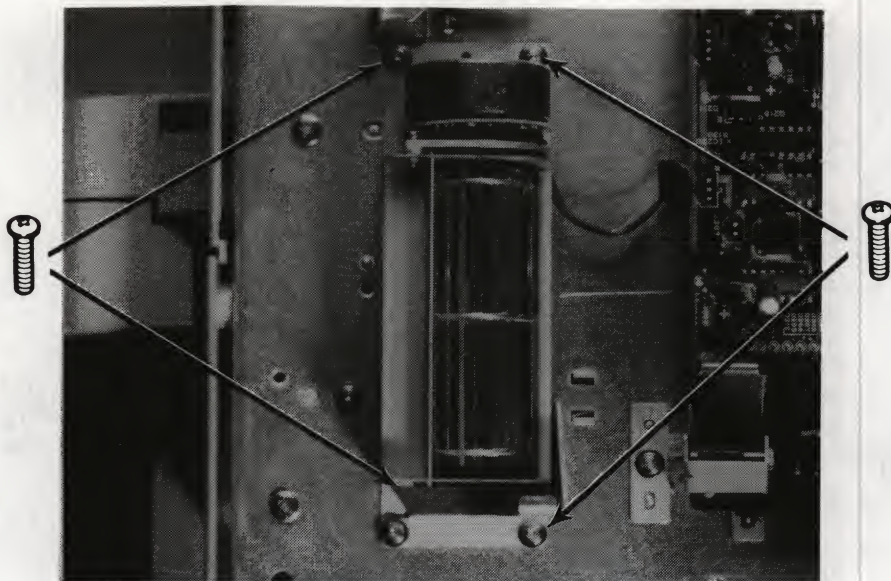
3. Unplug the connector from the fan control unit ①.
4. Remove the three screws that hold the main fan to the ac inlet assembly.
5. Remove the main fan.



8.36 FAN (FM2)

Use the following procedure to remove and replace the fan (FM2) of the DEClaser 2200 printer:

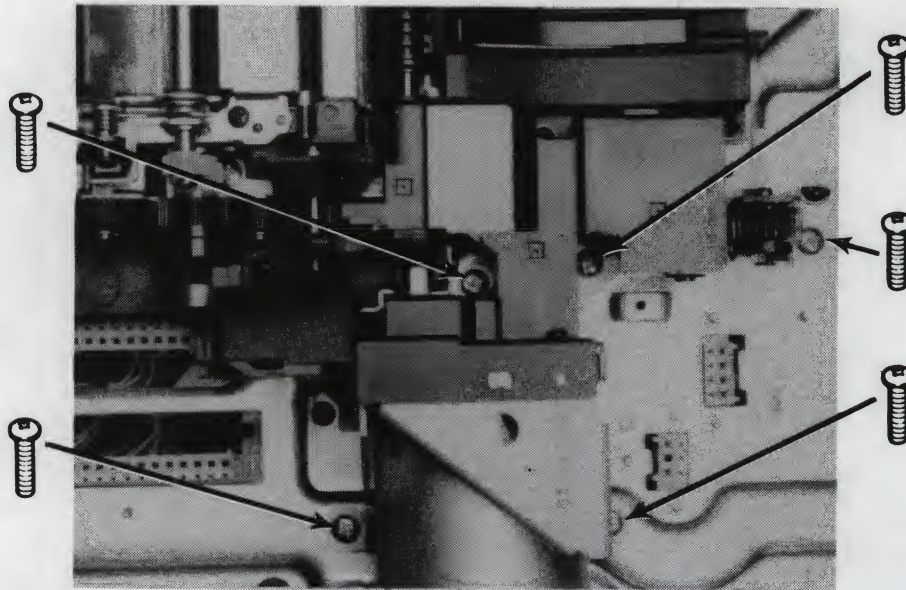
1. Remove the bottom cover as shown in Section 8.15.
2. Disconnect the FM2 cable connector from the 2-pin J207 dc control board connector.
3. Remove the four screws that hold the fan and support bracket to the baseplate, and remove the fan.



8.37 MAIN MOTOR ASSEMBLY

Use the procedure below to remove and replace the main motor assembly of the printer baseplate. The main motor assembly consists of the main motor and main drive gear train.

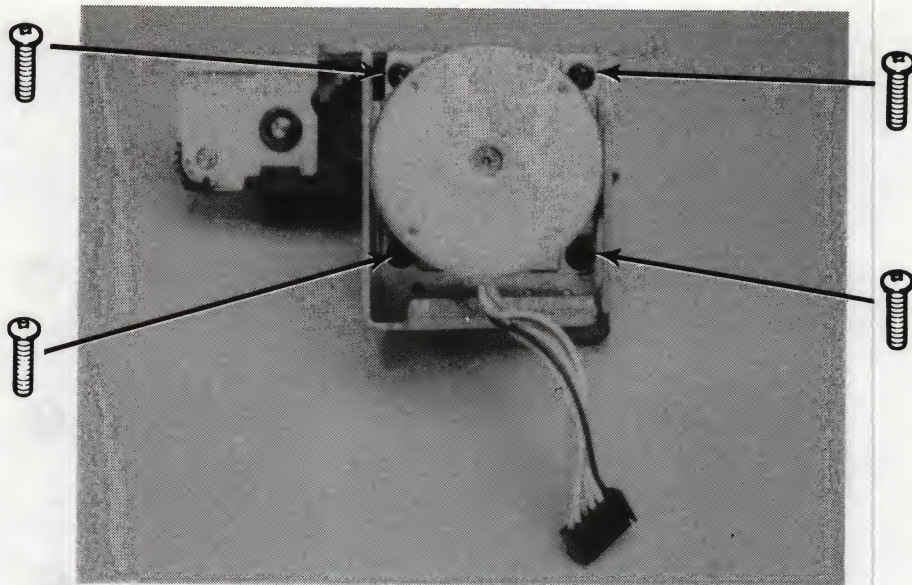
1. Remove the LVPSA as shown in Section 8.24.
2. Remove the ac inlet assembly as shown in Section 8.34.
3. Remove the five screws that hold the main motor assembly to the baseplate.
4. Remove the main motor assembly.



8.37.1 Main Motor Drive (Gears)

Use the following procedure to remove and replace the main motor drive (gears) of the DEClaser 2200 printer:

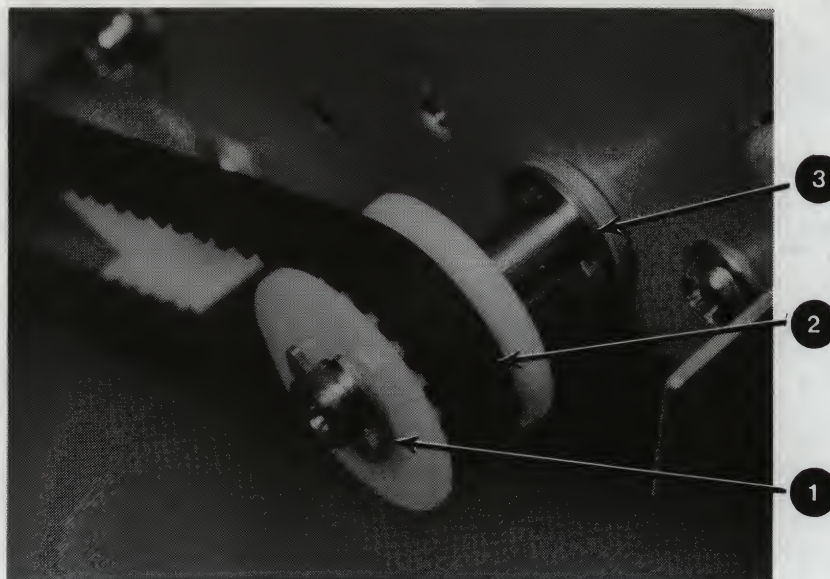
1. Remove the main motor assembly as shown in Section 8.37.
2. Remove the four screws that hold the motor flange to the drive assembly.
3. Remove the main motor from the main motor drive assembly.



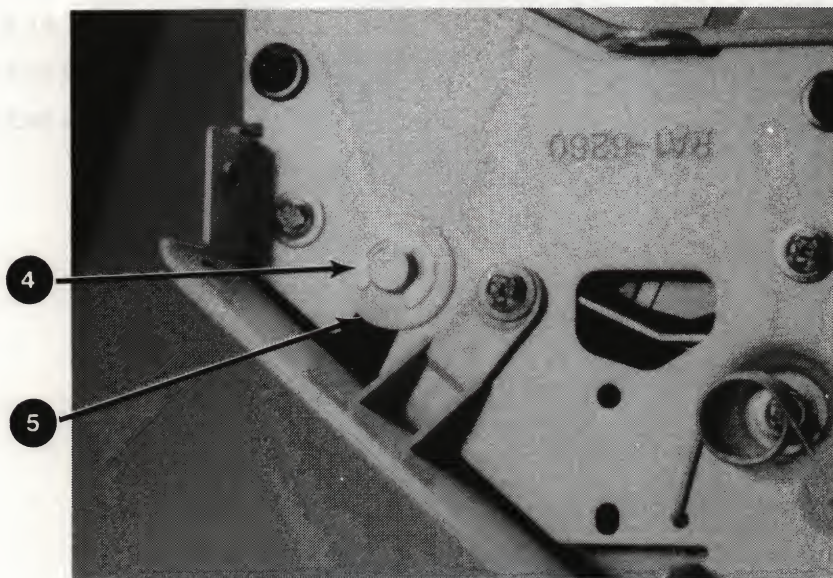
8.37.2 Inverter Roller

Use the following procedure to remove and replace the inverter roller of the DEClaser 2200 printer:

1. Remove the inverter side panels as shown in Section 8.14.3.
2. Remove the following components from the end of the inverter roller shaft:
 - ① The E-ring that holds the drive belt pulley
 - ② The plastic washer and drive belt
 - ③ The inner E-ring.



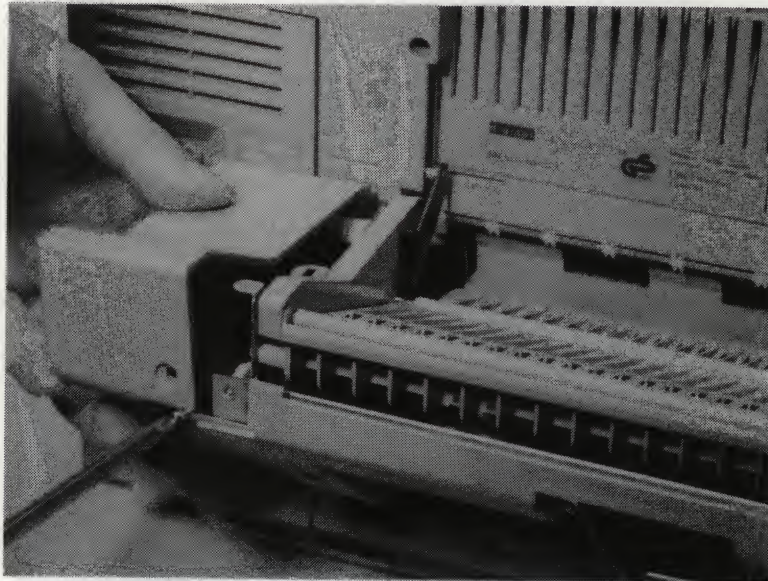
3. Remove the E-ring ④ from the front end of the inverter roller shaft.
4. Remove the bushing ⑤ from the front end of the inverter roller shaft.



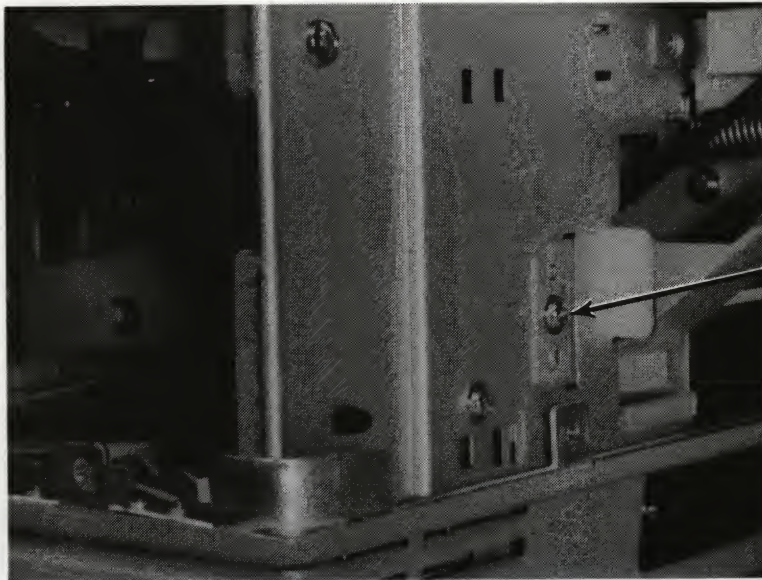
8.37.6 Inverter Drive Belt

Use the following procedure to remove and replace the inverter roller drive belt of the DEClaser 2200 printer:

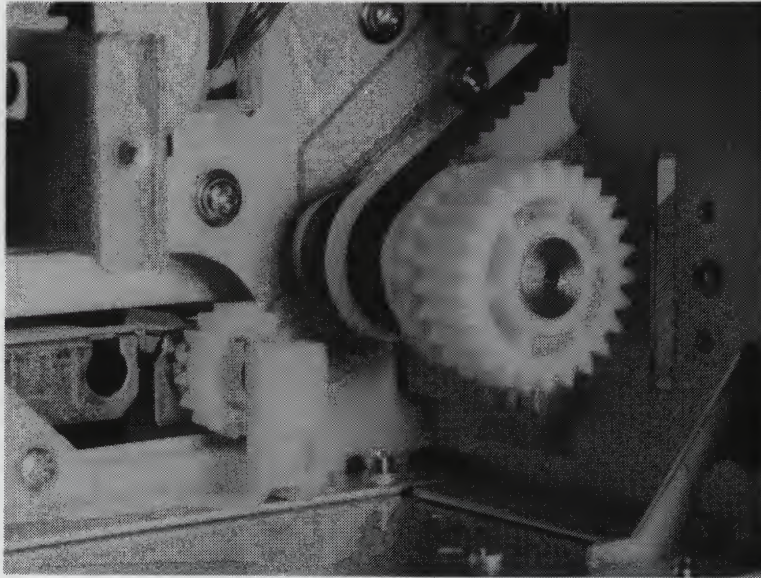
1. Remove the duplex gear side panel as shown in Section 8.11.
2. Remove the duplex inverter panel as shown in Section 8.14.
3. Remove the screw and remove the inverter side panel.



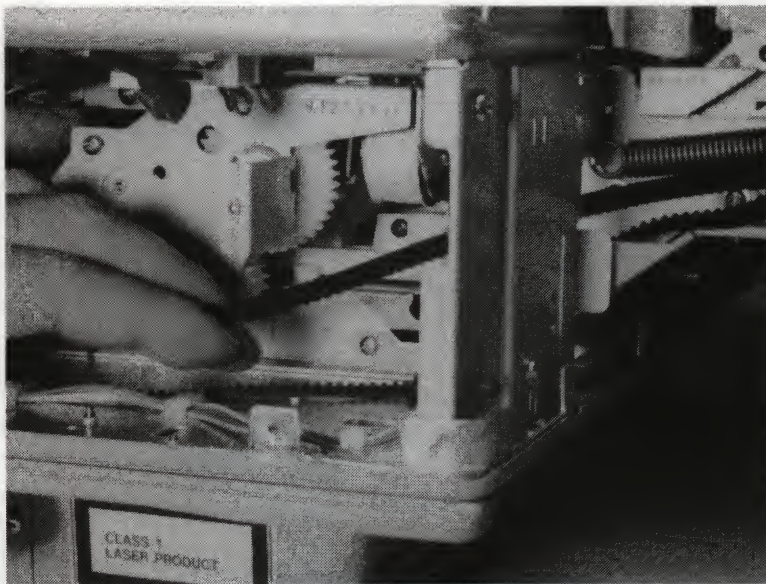
4. Remove the inverter drive assembly as shown in Section 8.37.5.
5. Remove the screw that holds the restraint bracket to the bulkhead of the duplex unit.



6. Remove the screw that holds the bracket to the end of the shaft.
7. Remove the restraint bracket.
8. Remove the gear that drives the belt.



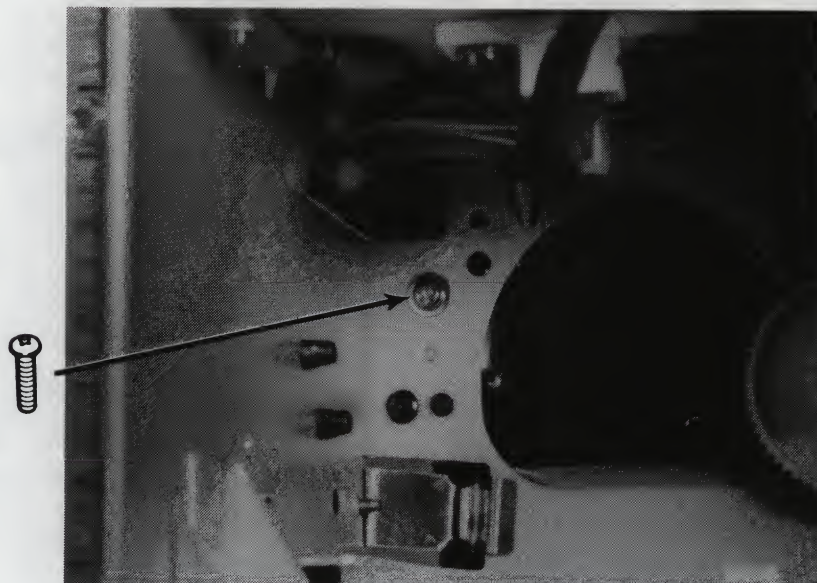
9. Remove the inverter drive belt.



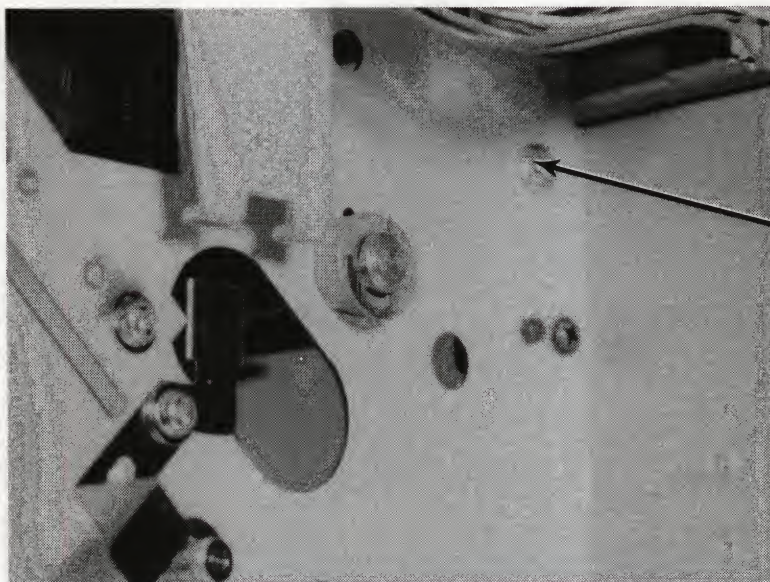
8.38 LOWER PICKUP SEPARATION PAD

Use the procedure below to remove and replace the lower pickup separation pad of the duplex unit of the DEClaser 2200 printer.

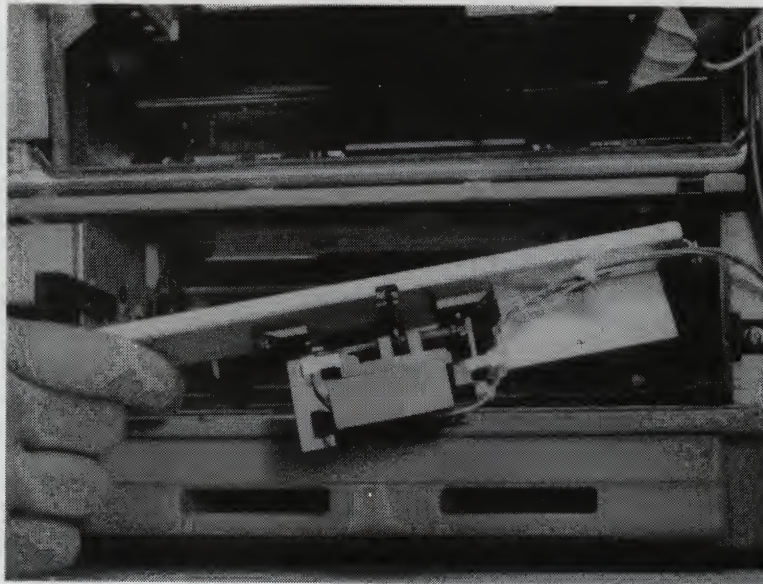
1. Remove the following components:
 - a. Duplex gear side panel as shown in Section 8.11
 - b. Duplex access side panel as shown in Section 8.12
 - c. Duplex cassette panel as shown in Section 8.13
 - d. Lower pickup roller assembly as shown in Section 8.40
2. Remove the screw that holds the front crossmember to the gear side of the duplex unit bulkhead.



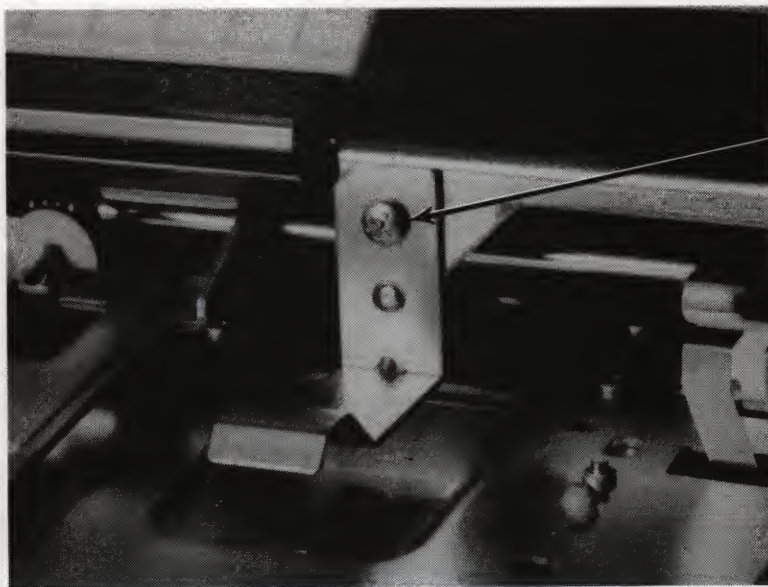
3. Remove the screw that holds the front crossmember to the access side of the duplex unit bulkhead.



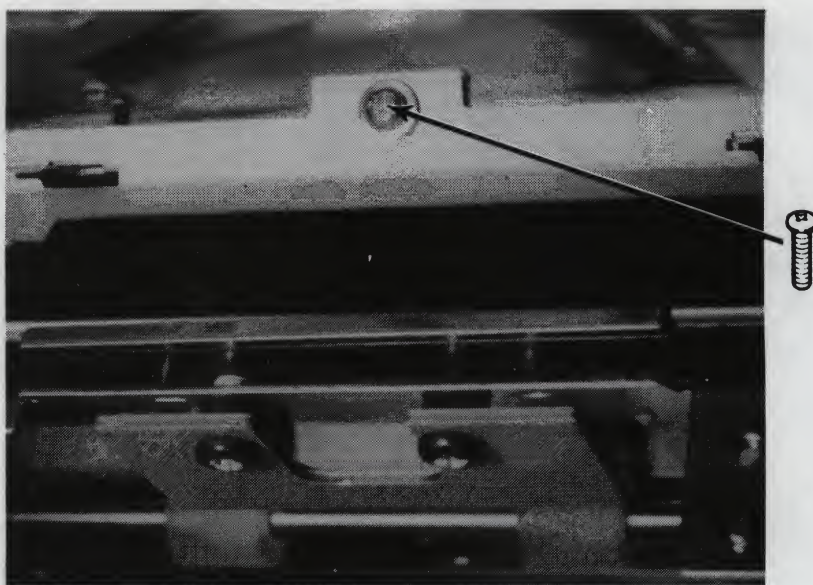
4. Pivot the crossmember forward, and remove the front crossmember. Allow it to hang next to the printer.



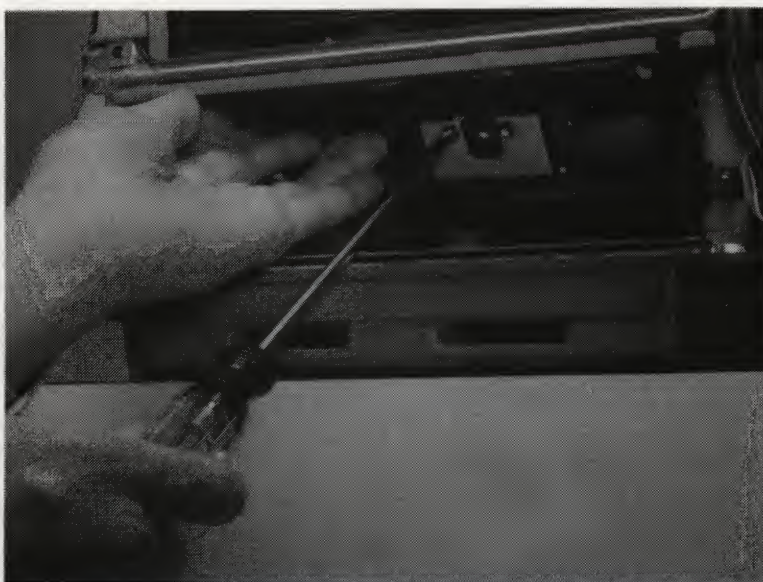
5. Remove the screw that holds the foot lever to the lower hinged plate, and remove the foot lever.



6. Remove the screw that holds the extension to the upper entrance guide, and remove the extension.



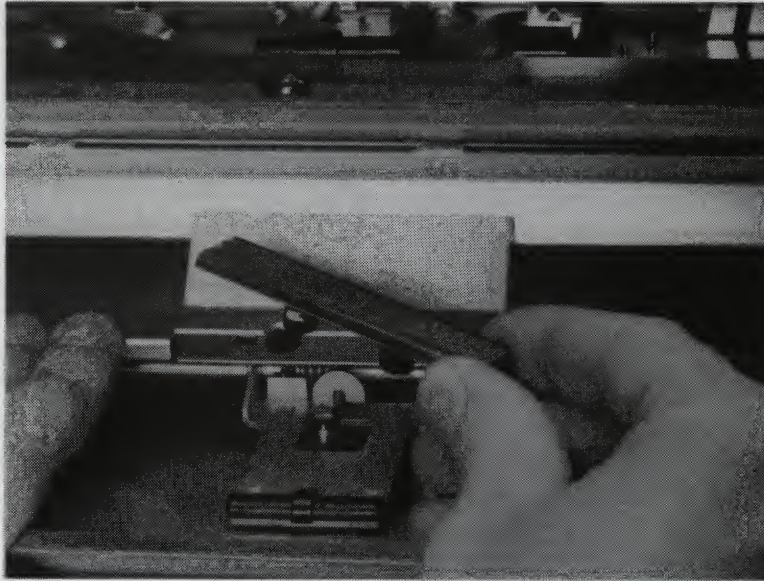
7. Hold up the lower hinged plate as shown and remove the two screws and restraint plate from the posts of the separation pad. Use a long shank magnetic screwdriver. The long shank screwdriver allows you to keep one hand outside the area, giving you better visibility and more room to work.



8. Push down the lower hinged plate, and remove the separation pad.

NOTE

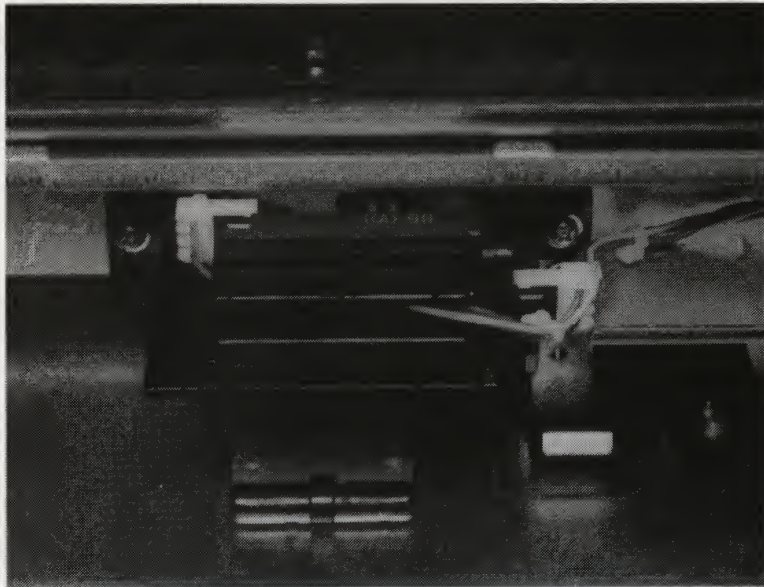
Be careful not to replace the separation pad backwards because the pad will not sit flat against the lower hinged plate. After installing the pad and bracket, make sure the pad is free to move up and down.



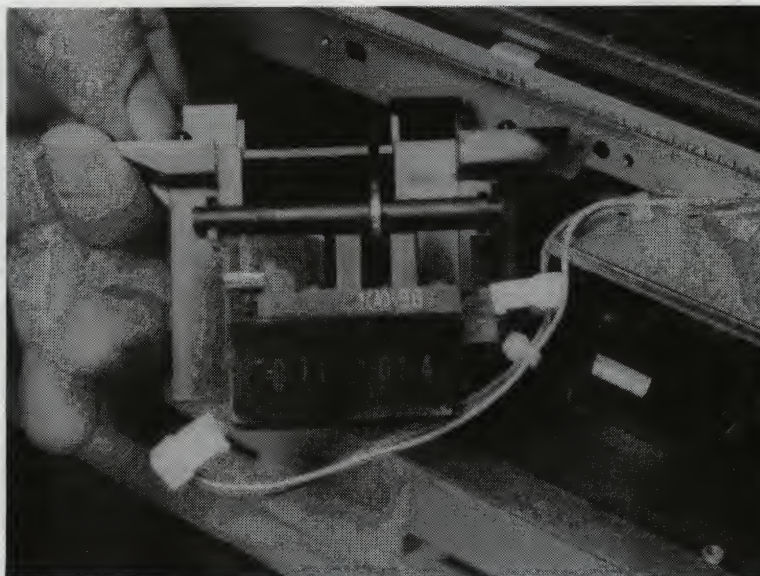
8.39 LOWER CASSETTE PAPER-OUT SENSOR

Use the following procedure to remove and replace the lower cassette sensor assembly of the DEClaser 2200 printer:

1. Remove the duplex cassette panel as shown in Section 8.13.
2. Remove the two screws that hold the sensor assembly to the frame. When replacing the assembly, make sure the cable runs in the location shown.



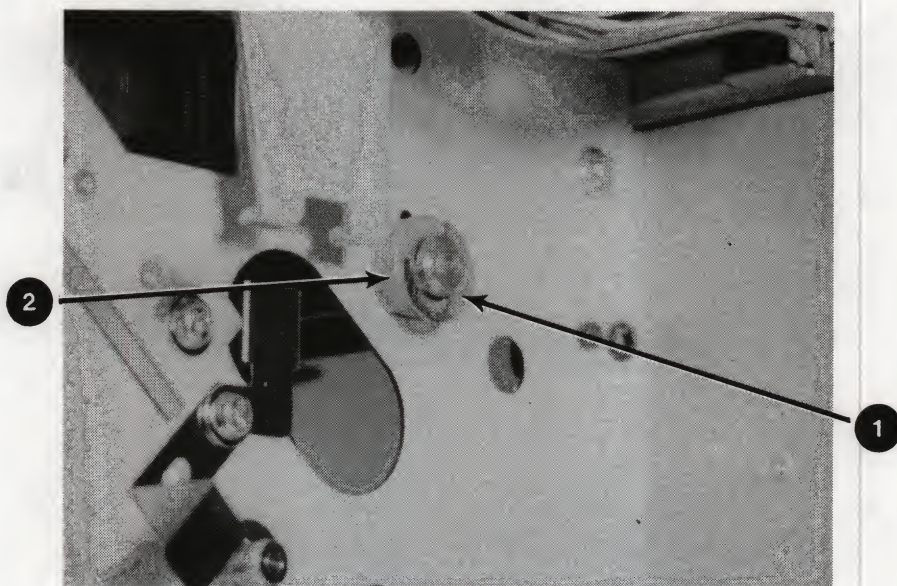
3. Unplug the two cable connectors and remove the assembly.



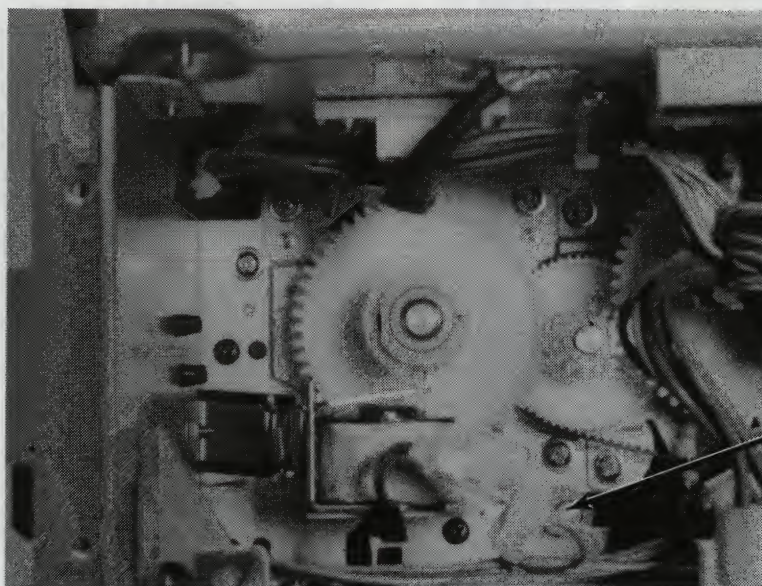
8.40 LOWER PICKUP ROLLER ASSEMBLY

Use the following procedure to remove and replace the lower pickup roller assembly of the DEClaser 2200 printer:

1. Remove the duplex gear side panel as shown in Section 8.11.
2. Remove the duplex access side panel as shown in Section 8.12.
3. Remove the E-ring ❶ from the shaft of the pickup roller.
4. Remove the bearing insert ❷.



5. Unplug the solenoid connector ③.
6. Remove the three screws that hold the assembly to the bulkhead.

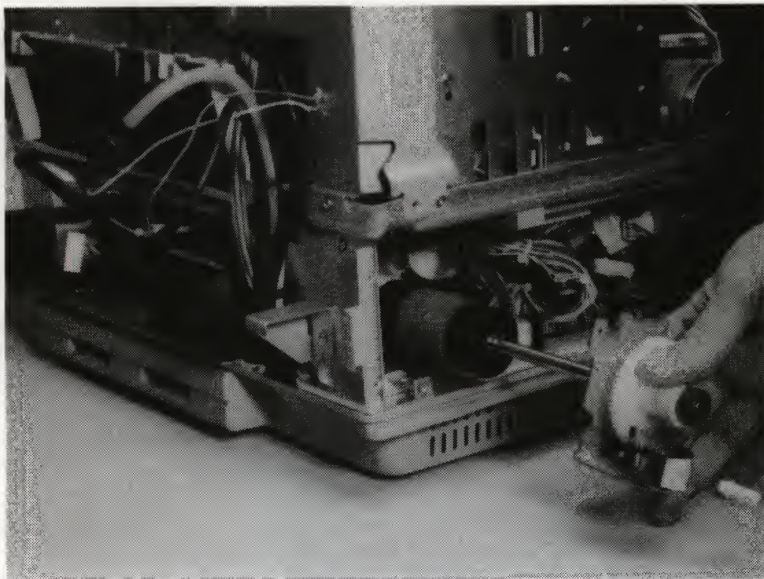


7. Remove the pickup roller assembly.

CAUTION

Cuts or grease contamination can damage the surfaces of the pickup or auxiliary rollers during removal or replacement. Be careful handling the pickup roller assembly.

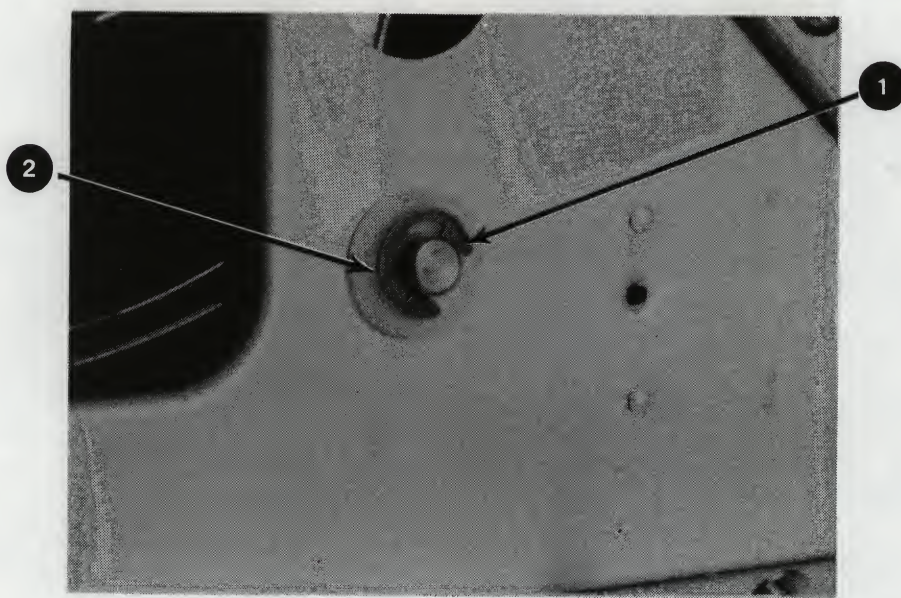
The pickup roller clutch cannot be replaced in the field. A special tool is used to align the clutch on the pickup roller shaft.



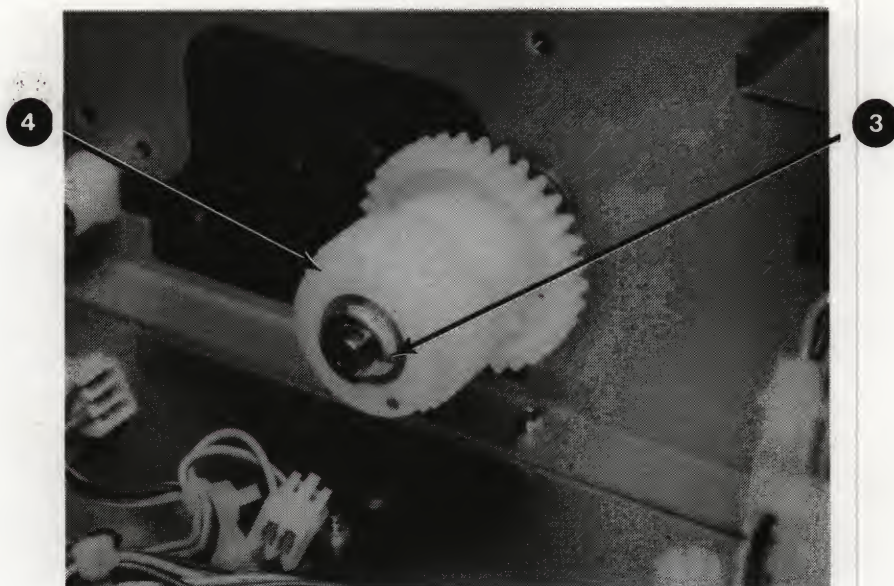
8.41 SECOND PASS ROLLER

Use the procedure below to remove and replace the second pass roller of the DEClaser 2200 printer.

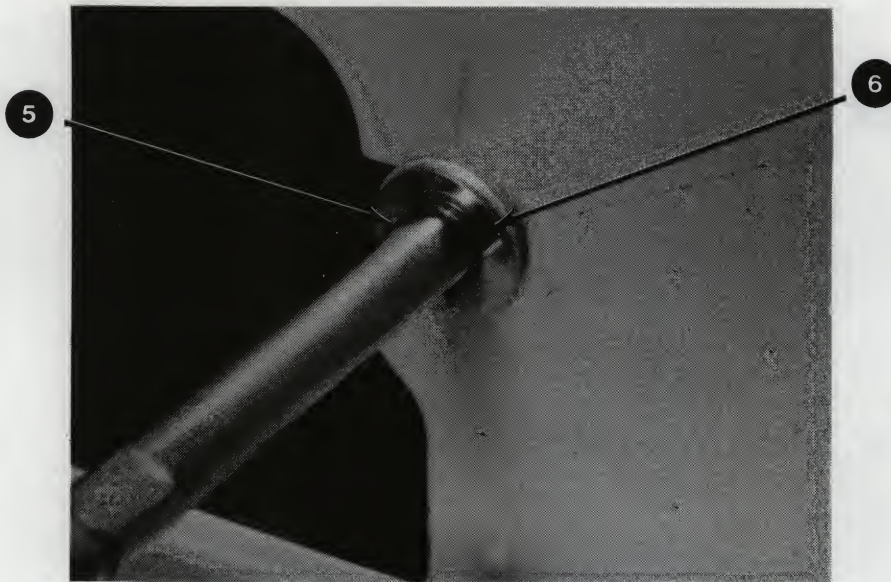
1. Perform the following actions:
 - a. Separate the printer and duplex sections as shown in Section 8.6.
 - b. Remove the second pass pickup solenoid as shown in Section 8.41.1.
 - c. Remove the lower pickup roller assembly as shown in Section 8.40.
 - d. Remove the duplex unit motor assembly as shown in Section 8.46.
2. Remove the E-ring **1** and bushing **2** from the front end of the shaft.



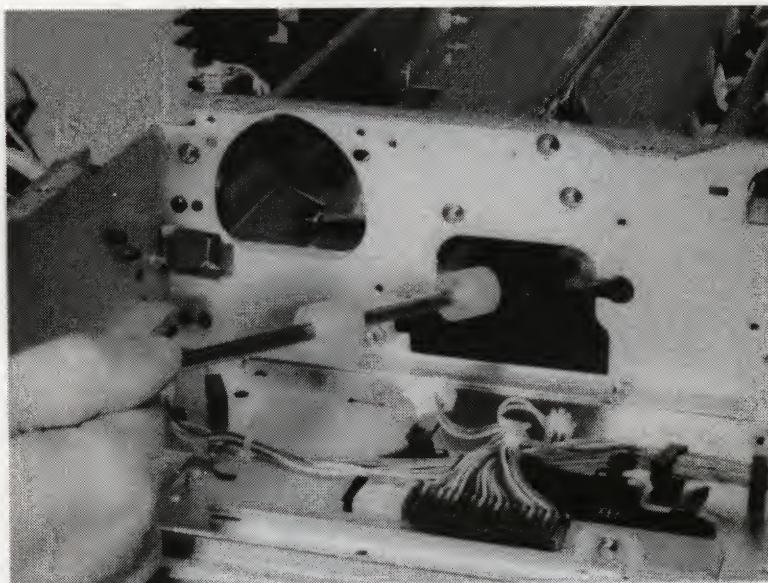
3. Remove the E-ring ③ that holds the clutch assembly onto the shaft.
4. Remove the clutch assembly ④.



5. Remove the inside E-ring ⑤ from the shaft.
6. Remove the bearing ⑥.



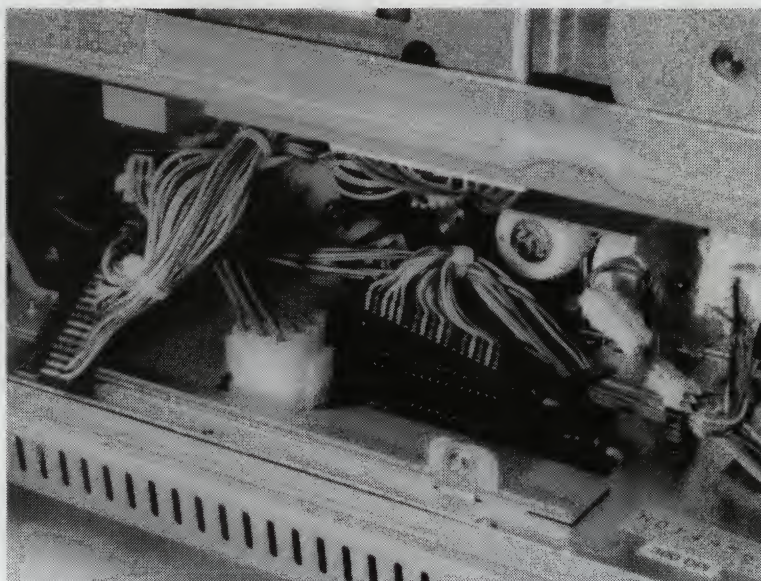
7. Remove the second pass roller shaft.



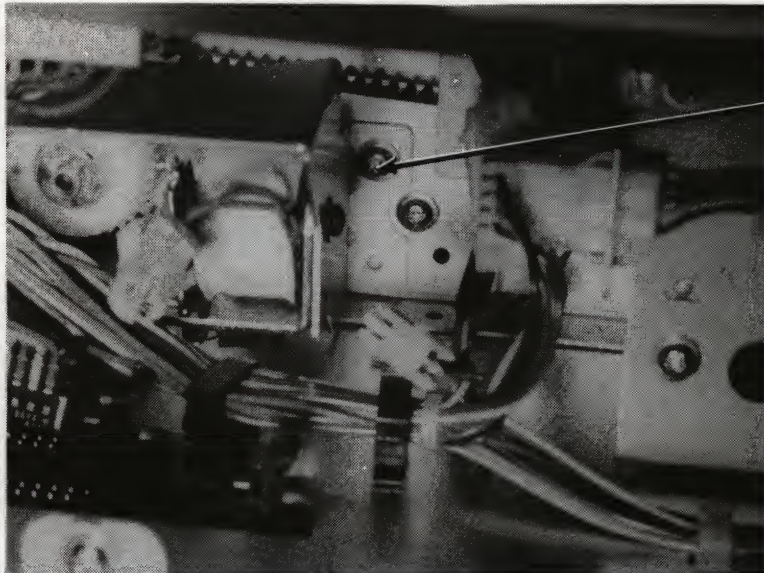
8.41.1 Second Pass Pickup Solenoid

Use the following procedure to remove and replace the second pass solenoid assembly of the DEClaser 2200 printer:

1. Remove the duplex gear side panel as shown in Section 8.11.
2. Unplug the following:
 - a. 40-pin connector, J214
 - b. 34-pin connector, J215
 - c. 2-pin solenoid connector



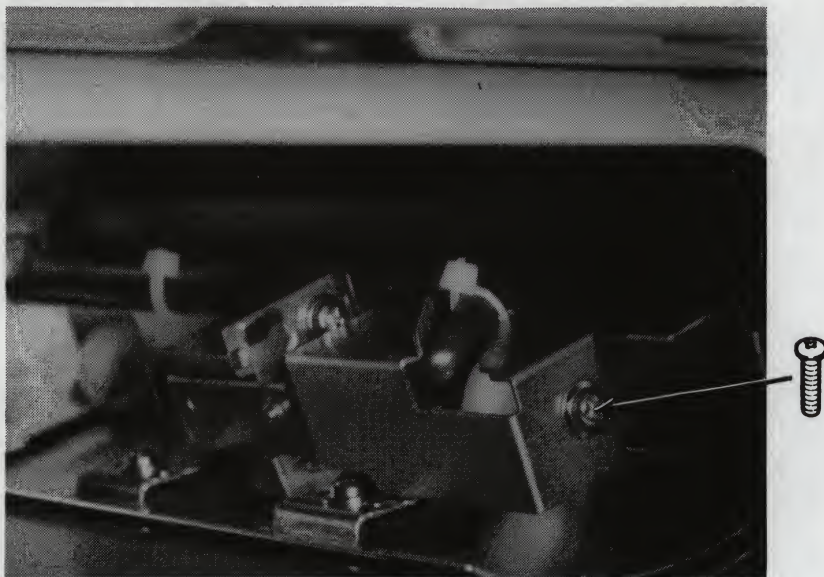
3. Remove the screw that holds the solenoid to the bulkhead and remove the solenoid assembly.



8.42 SECOND PASS SENSOR

Use the following procedure to remove and replace the second pass sensor assembly of the DEClaser 2200 printer:

1. Remove the duplex access side panel as shown in Section 8.12.
2. Remove the screw that holds the sensor shield, and remove the shield.



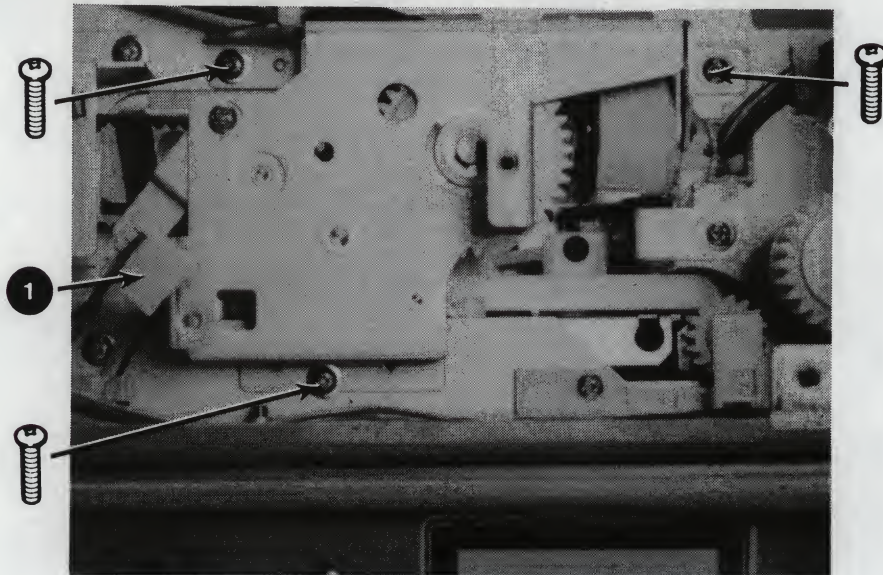
-



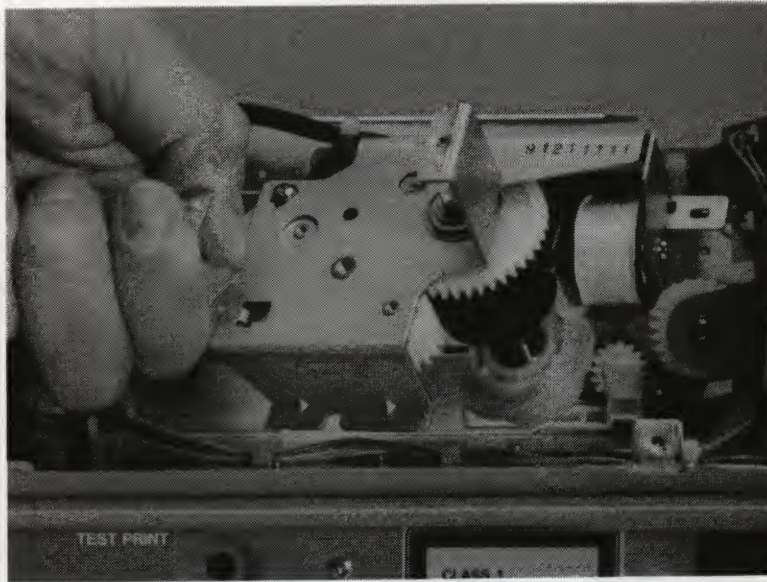
8.43 ALIGNMENT GUIDE DRIVE ASSEMBLY

Use the following procedure to remove and replace the assembly that drives the alignment guide plate:

1. Separate the printer and duplex assemblies as shown in Section 8.6.
2. Remove the inverter drive assembly as shown in Section 8.37.5.
3. Unplug the connector ❶ for the alignment guide drive assembly.
4. Unclip the cable clamp and remove the cable from its cable clamp.
5. Remove the three screws that holds the drive unit to the bulkhead.



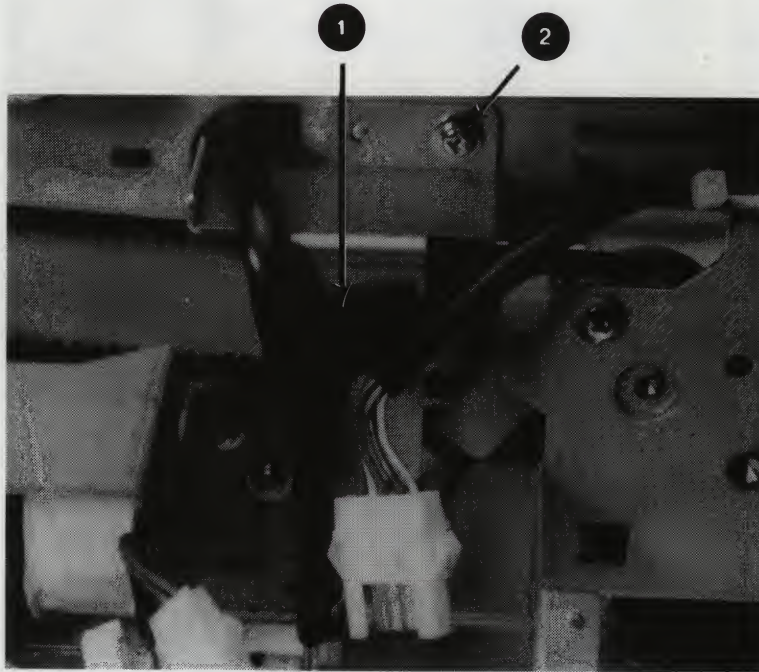
6. Remove the alignment guide drive assembly. When replacing the alignment guide drive assembly, make sure the cam and the cam follower engage.



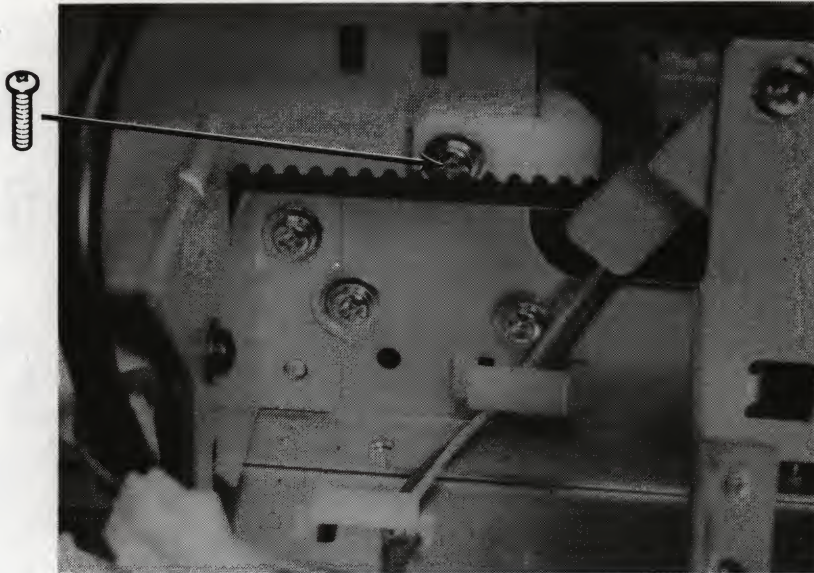
8.44 ALIGNMENT PRESSURE PLATE AND ROLLER

Use the following procedure to remove and replace the pressure plate and alignment pressure roller of the DEClaser 2200 printer:

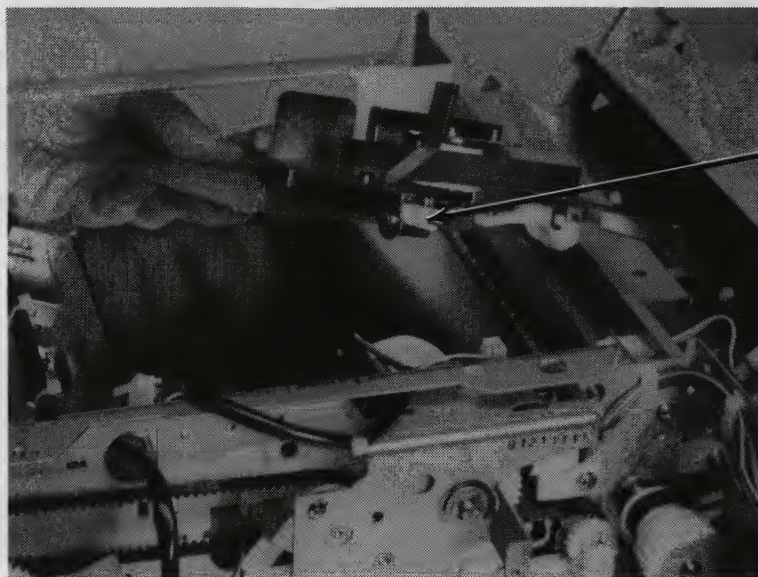
1. Separate the printer and duplex assemblies as shown in Section 8.6.
2. Unclip the cable clamp ❶ and remove the two cables.
3. Remove the screw that holds the cable clamp bracket ❷ to the bulkhead, and remove the bracket.



4. Remove the screw that holds the hinge pin to the bulkhead.
5. Remove the hinge pin.



6. Move the pressure plate off the hinge pins.
7. Disconnect the connector ③ that connects the pressure roller actuation solenoid to the wire harness.
8. Remove the pressure plate.



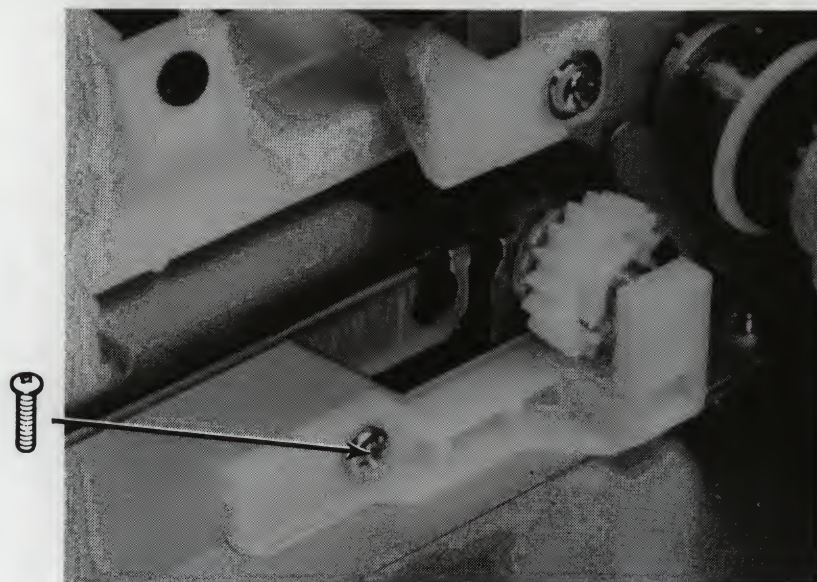
9. Remove the spring ④ connecting the roller to the solenoid.
10. Remove the screw and roller bracket.



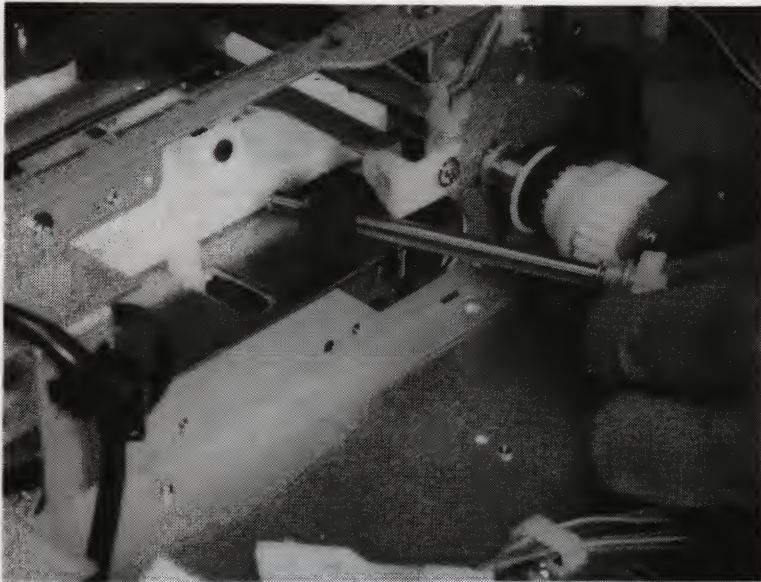
8.45 ALIGNMENT ROLLER

Use the following procedure to remove and replace the alignment friction roller of the duplex unit of the DEClaser 2200 printer:

1. Separate the printer and duplex assemblies as shown in Section 8.6.
2. Remove the inverter drive assembly as shown in Section 8.37.5.
3. Remove the alignment guide drive assembly as shown in Section 8.43.
4. Remove the screw that holds the shaft retainer.
5. Gently remove the shaft retainer.



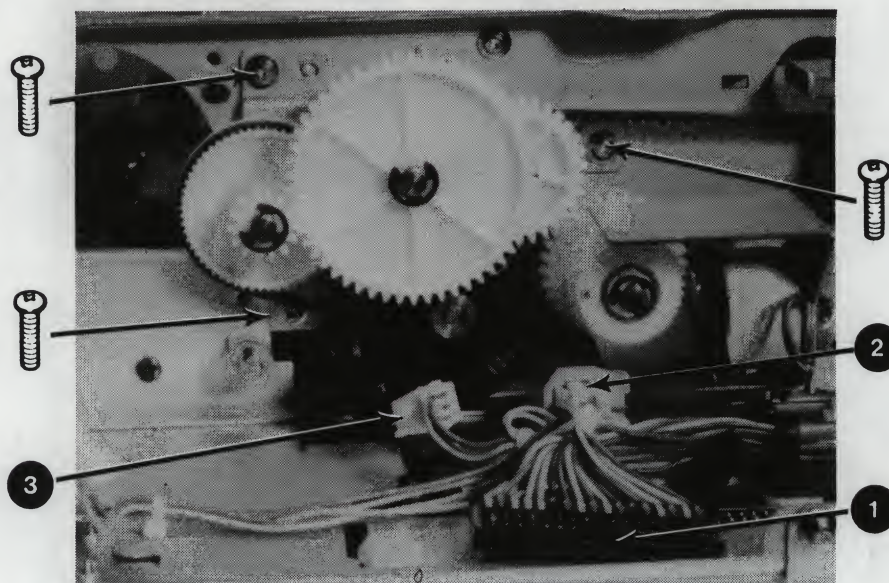
6. Hold open the jam clearance plates.
7. Remove the alignment roller. Move the alignment plate back and forth to accommodate removal of the alignment roller.



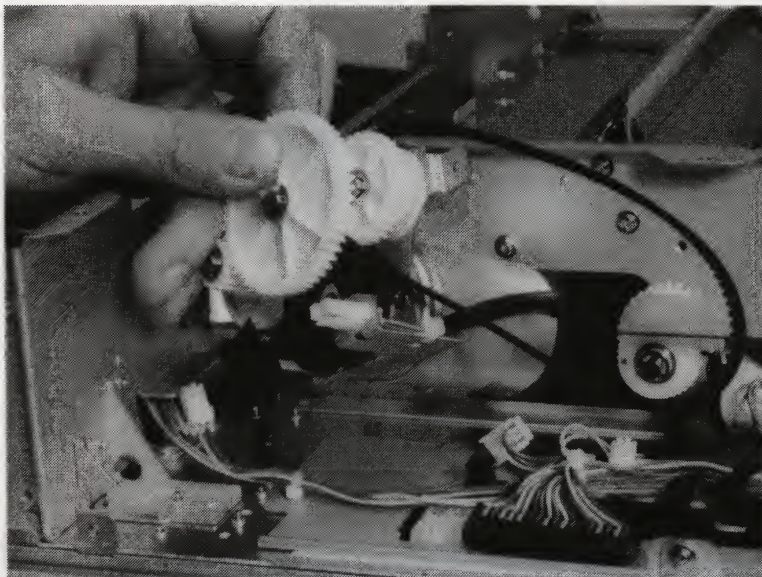
8.46 DUPLEX UNIT MOTOR ASSEMBLY

Use the following procedure to remove and replace the duplex unit motor assembly of the DEClaser 2200 printer:

1. Separate the printer and duplex assemblies as shown in Section 8.6.
2. Remove the lower pickup roller assembly as shown in Section 8.40.
3. Unplug the following connectors:
 - ① The 34-pin connector, J215
 - ② The 2-pin motor connector
 - ③ The 2-pin encoder sensor connector
4. Remove the three screws that hold the motor assembly to the bulkhead. When replacing the screws, make sure the assembly sits correctly on the alignment pins.



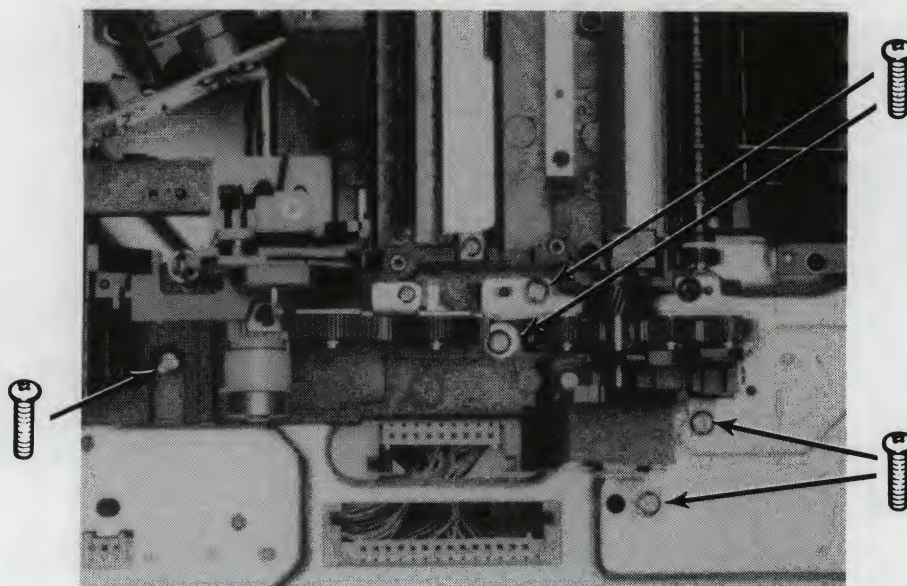
5. Partially remove the duplex motor assembly to relieve the tension on the long drive belt.
6. Remove the drive belt from the driven cog pulley of the alignment drive.
7. Remove the duplex unit motor assembly.



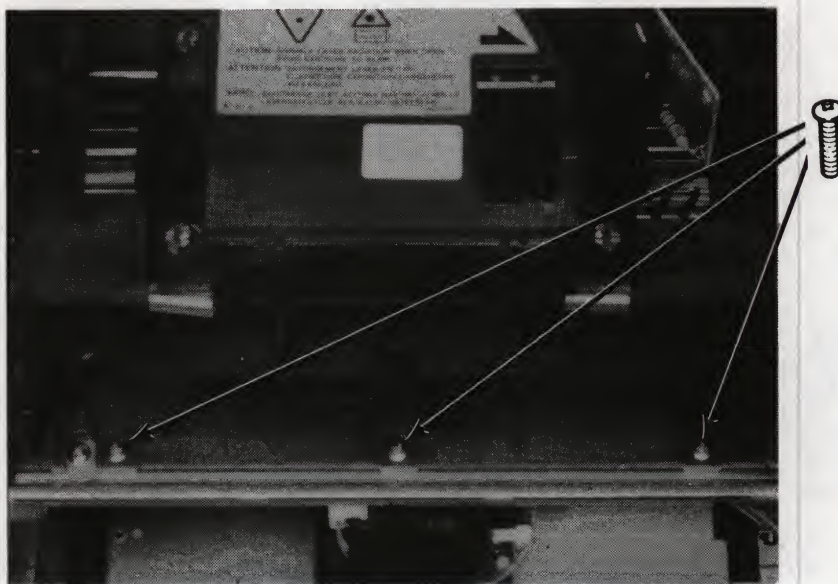
8.47 UPPER PAPER PRESSURE ASSEMBLY

Use the procedure below to remove and replace the upper paper pressure assembly of the DEClaser 2200 printer.

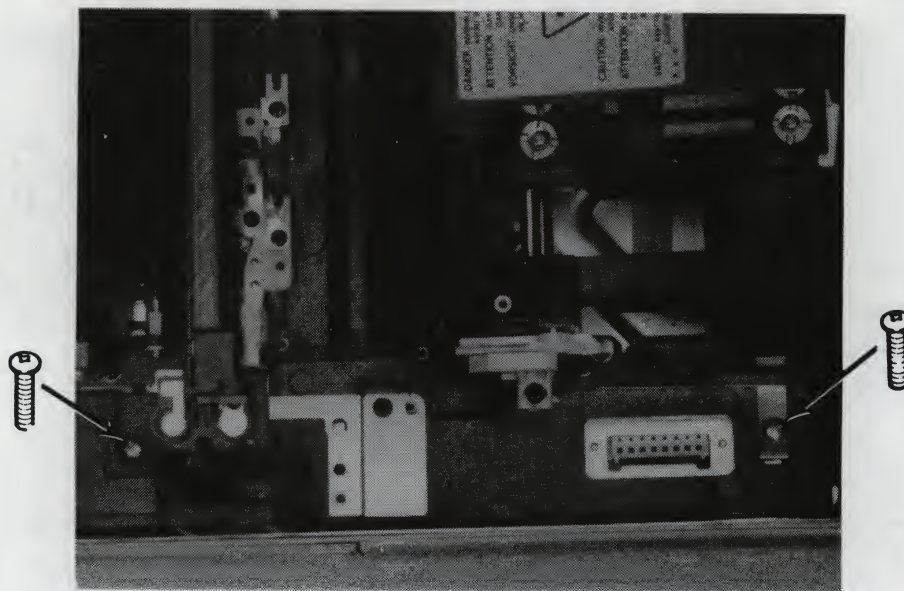
1. Remove the following assemblies and all other parts required by the following procedures:
 - a. Transfer drive assembly as shown in Section 8.28
 - b. HVPSA as shown in Section 8.23
 - c. LVPSA as shown in Section 8.24
 - d. AC inlet assembly as shown in Section 8.34
 - e. Main motor assembly as shown in Section 8.37
2. Disconnect the three cables from the scanner assembly as shown in Section 8.25.
3. Remove the five screws that hold the motor side of the chassis to the engine baseplate. Note the screw length for reassembly.



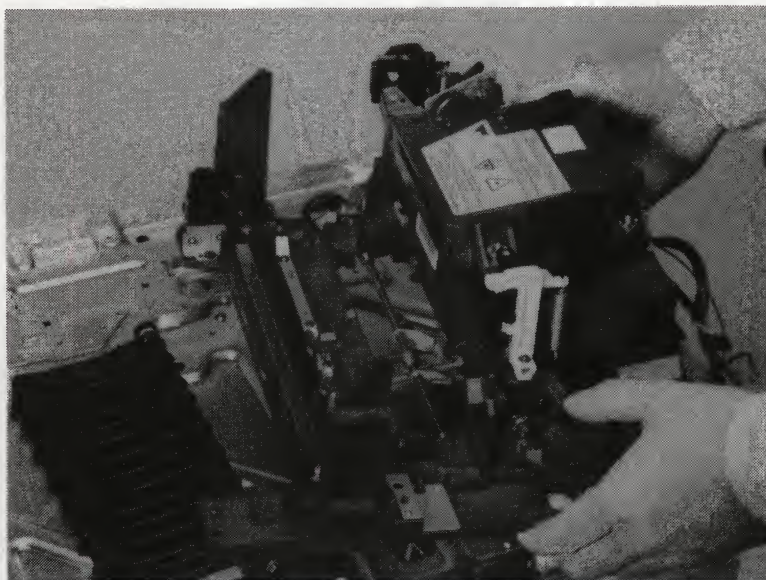
4. Remove the three screws that hold the cassette end of the chassis to the engine baseplate.



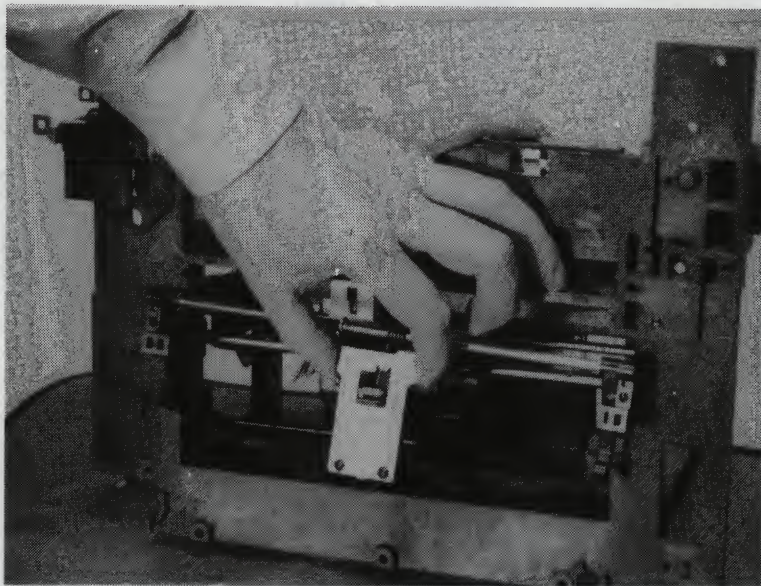
5. Remove the two screws that hold the HVPSA side of the chassis to the engine baseplate.



6. Lift up and remove the chassis assembly from the engine baseplate. Place the chassis assembly end-up on a work surface.



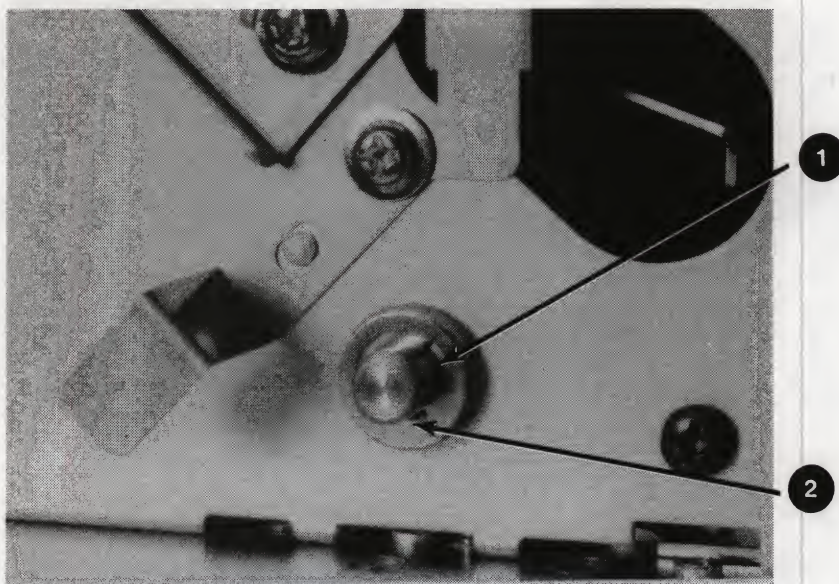
7. Remove the two screws that hold the upper paper pressure assembly to the chassis.
8. Remove the upper paper pressure assembly from the chassis.



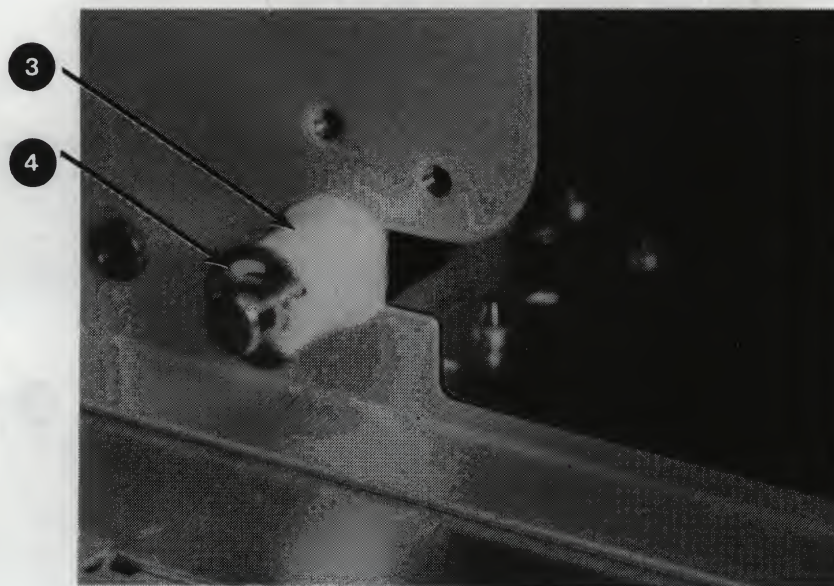
8.48 LOWER PAPER PRESSURE ASSEMBLY

Use the following procedure to remove and replace the lower paper pressure assembly of the duplex unit of the DEClaser 2200 printer:

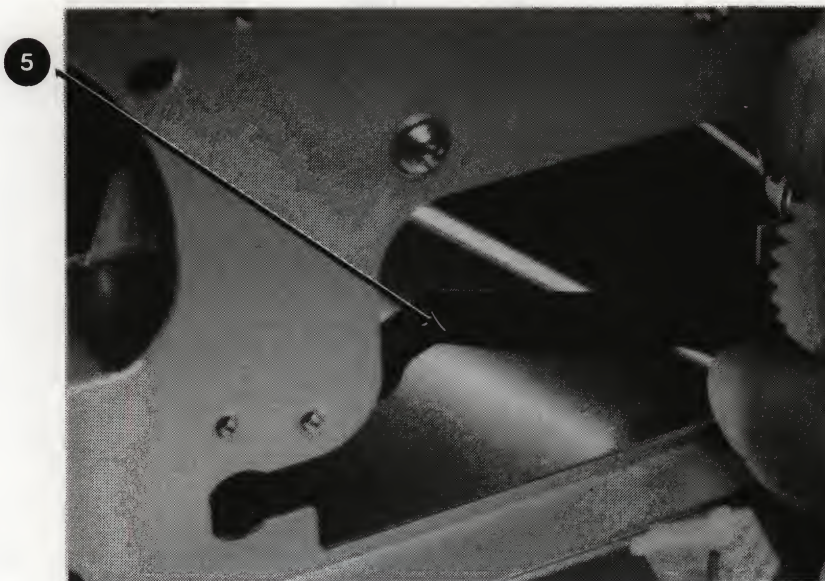
1. Separate the printer and duplex assemblies as shown in Section 8.6.
2. Remove the lower pickup roller assembly as shown in Section 8.40.
3. Remove the duplex unit motor assembly as shown in Section 8.46.
4. Remove the E-ring ❶ and bearing ❷ from the access end of the pressure assembly shaft.



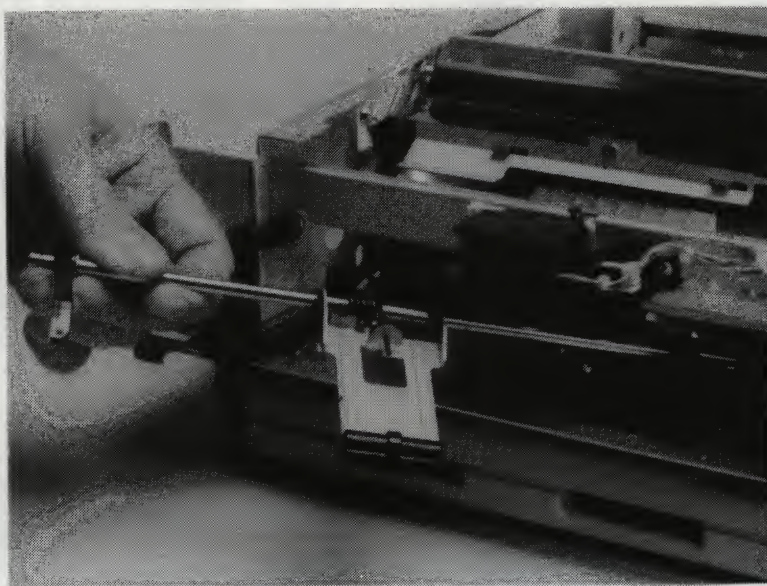
5. Remove the E-ring ③ and plastic bushing ④ from the gear end of the pressure assembly shaft.



6. Gently bend the cassette-lifting cam ⑤ until the pressure assembly can be partially pulled through the hole in the bulkhead.



7. Remove the pressure assembly through the front of the lower cassette slot.



8.49 VERIFYING PRINTER OPERATION

After completing a removal and replacement procedure, verify the operation of the printer as follows:

- Power up the printer.
- Perform TEST PRINT A.
- Perform TEST PRINT B.

If a fault is encountered during this procedure, go to the appropriate troubleshooting procedure.

UNIT 9

DEClaser 2100/2200 TOTAL CALL CONCEPT (TCC)

9.1 INTRODUCTION

This unit contains information on performing total call concept (TCC). It includes information on the TCC procedure, the maintenance log, and the 100K preventive maintenance (100k PM) procedure.

9.2 OBJECTIVES

Upon successful completion of Unit 9, the CSE should be able to:

1. Explain the TCC philosophy.
2. Perform the DEClaser 2000 Family Printer TCC procedure.

9.3 PERFORMING TCC

TCC is performed whenever the Customer Services engineer (CSE) is called to repair or service the printer. Always fix the printer first and then perform the TCC procedure.

9.4 MAINTENANCE LOG

Reviewing and recording an accurate maintenance history is crucial to the long life and reliability of the DEClaser 2100/2200 printer. When you first arrive at the site, review the maintenance log for information that can assist you in troubleshooting and repairing the malfunctioning printer. After you fix the problem, record your activity in the maintenance log for the benefit of the next service person.

Copies of the maintenance log are included in the rear pocket of the DEClaser 2100 and 2200 service guides. It is recommended that you photocopy a plentiful supply of the maintenance log and carry several copies with you.

A special sticky-back pouch is available for storing the maintenance log at the customer's site. The order number for the pouch is 36-18307-04. Attach the pouch either underneath or outside the bottom cover of the printer.

Page Count Record

The recorded page count information is used for contractual purposes such as excess usage and refurbishment charges, and for service purposes such as TCC and 100k PM. All page count information is recorded in the page count IC that is installed on the video control board. If you replace the video control board, remove the page count IC from the defective board and install it on the new video control board. This procedure is shown in Section 7.11.1 for the DEClaser 2100 printer and Section 8.18.1 for the DEClaser 2200 printer.

Use the procedure below to obtain the current page count and to determine if you need to perform the 100k preventive maintenance (100k PM) procedure.

1. Press **Test/Font** to obtain a copy of the TEST SHEET A and the current page count.
2. Obtain page count information from the maintenance log.
3. You must perform the 100k PM if the page count is close to or exceeds 100,000 pages, or if 100,000 pages have been counted since the last 100k PM.

9.5 100K PM PROCEDURE

After every 100,000 pages, replace the following FRUs. Refer to Table 7-1 for DEClaser 2100 part numbers and Table 8-1 for DEClaser 2200 part numbers.

1. Fixing unit
2. Upper separation pad
3. Lower separation pad
4. Upper pickup roller assembly
5. Lower pickup roller assembly
6. Transfer corona assembly
7. Ozone filter

9.6 TCC PROCEDURE

When you perform TCC you will enhance the reliability of the printer and reduce the number of service calls that are required to support the printer.

Use the historical information from the maintenance log to analyze the reliability of the printer and of components within the printer. If you are uncertain whether a component is worn, broken, or contaminated but suspect that it is, replace it anyway. This should reduce the number of service calls over the lifetime of the printer.

CAUTION

Always use the special vacuum cleaner and attachments listed below for cleaning up toner. The toner powder can pass through the bag or filter of a conventional vacuum cleaner and cause damage.

Number	Description
29-26259-00	Vacuum and attachments, 200 V
29-25526-00	Vacuum and attachments, 120 V
29-26017-00	Filter bags and filter shell

Damaged, worn, or broken printer components cause intermittent problems and accelerate the aging of mechanical components. Pinched or frayed wires can randomly short circuit. Paper dust, dirt, and toner on rollers, bearings, and gears cause premature failures. Replace any rollers that have flat spots, surface glazing or cracking, or dust or toner contamination.

9.6.1 External Cleaning

Clean and vacuum toner, paper dust, and dirt from the following areas inside and outside the DEClaser 2100/2200 printer.

- All paper feed areas (cassettes, cassette tops, and envelope feeder)
- Upper and lower pick-up roller assembly and paper paths
- Registration rollers and paper paths
- Area around the transfer and separation charger
- EP-S cartridge assembly
- Paper feed guide assembly
- Fixing unit entrance and exit areas
- Output rollers and paper paths
- Facedown and faceup stacking trays

9.6.2 Internal Cleaning and Inspection

1. Remove the following covers and panels:
 - a. Upper cover from the printer
 - b. Duplex unit gear side panel
 - c. Duplex unit access side panel
 - d. Inverter paper guide panel

2. Inspect and clean the inside of the printer looking for for toner spills, paper dust, or foreign objects.
3. Inspect the surface condition of the upper and lower pickup rollers and separation pads. Do not contaminate the surfaces of the rollers or pads with your fingers' natural oils.
4. Use the special cleaning tool provided with each printer to clean the primary and transfer charge wires. A dry cotton swab also serves the purpose. Vacuum the charge wire well.
5. Inspect the rollers of the fixing unit for scratches or damage.
6. Inspect the surface condition of the inverter, alignment, and second pass rollers.
7. Press Test/Font to print several copies of TEST PRINT B while you are filling out service call paperwork. This ensures the customer that the printer is functioning and is in good operating order.
8. Replace all the covers.

APPENDIX A

POST-TEST

Answer the questions below on the answer sheet provided by the course administrator. When you have finished the test, return the answer sheet to the administrator for grading.

1. The DEClaser 2100/2200 can print at speeds up to:
 - a. 6 pages/minute
 - ☒ b. 8 pages/minute
 - c. 12 pages/minute
 - d. 14 pages/minute

2. Which DEClaser printer(s) has the ability to print envelopes?
 - a. DEClaser 2100 only
 - b. DEClaser 2200 only
 - ☒ c. Both DEClaser 2100 and 2200

3. A flashing Ready light indicates:
 - a. The printer is off-line.
 - b. An alarm condition exists.
 - c. A paper jam has occurred.
 - ☒ d. The printer is warming up. *or printing* *Li.*

4. The Form Feed key only works:
 - a. When the printer is on-line
 - ☒ b. When the DATA and READY indicators are on
 - c. When the printer is in duplex mode
 - d. When a fault condition exists

5. The Feeder Select key:
- a. Toggles feed source indicators on the DEClaser 2200
 - b. Is used to select paper trays on the DEClaser 2100
 - c. Selects auto feed on the DEClaser 2100
 - d. Corrects feed faults
6. The total number of pages printed can be obtained by invoking:
- a. TEST PRINT B
 - b. TEST PRINT A
 - c. Engine test print
 - d. Character Dump mode
7. On power-up, the elapsed time between the 02 WARMING UP and 00 READY displays is:
- a. Instantaneous
 - b. 5 minutes
 - c. Approximately 2 minutes
 - d. Approximately 10 minutes
8. During power-up, if the fixing unit fails to reach proper operating temperature:
- a. The 60 SERVICE message is displayed.
 - b. The 87 SERVICE message is displayed.
 - c. The 92 SERVICE message is displayed.
 - d. The 50 SERVICE message is displayed.
9. A 19 PAPER PATH 3 message display:
- a. Indicates a DEClaser 2100 paper jam error
 - b. Indicates a paper jam in the duplexer
 - c. Is a DEClaser 2100 envelope cassette error
 - d. Is a DEClaser 2200 envelope cassette error

10. TCC should be performed:

- a. After every service call or at 100k pages
- b. At 500k pages
- c. Every 3 months
- d. After all paper jams

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